

Release 3.1A John F. Collins, Blocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

MPsrch_nn n.a. - n.a. database search, using Smith-Waterman algorithm

Thu Nov 5 09:13:43 1998; MasPar time 2713.32 Seconds 1526.778 Million cell updates/sec Run on:

Tabular output not generated.

1 GAATICGGCCTICATGGCCT.....AAAAAAAAAAAAAGGGCGGC 2027 CTTAAGCCGGAAGTACCGGA......TITITITITITITGCCGGCG >US-08-848-439-1 (1-2027) from US08848439.seq 2027 Title: Description: Perfect Score: N.A. Sequence: Comp:

Scoring table:

TABLE default Gap 6

552174 seqs, 1021863385 bases x 2 Searched:

Dbase 0; Query 0

Nmatch STD

Minimum Match 0% Listing first 60 summaries Post-processing:

emb155 Database: Database:

1:em_ba 2:em_htg 3:em_hum1 4:em_hum2 5:em_in 6:em_om 7:em_or 8:em_ov 9:em_pat 10:em_pl 11:em_ro genbank107 12:gb_ba 13:gb_htg 14:gb_in 15:gb_om 16:gb_ov 17:gb_pat 18:gb_ph 19:gb_pl 20:gb_pr1 21:gb_pr2 22:gb_ro 23:gb_st 24:gb_sts 25:gb_sy 26:gb_un 27:gb_vi

Mean 12.049; Variance 7.022; scale 1.716 Statistics:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

					_											_
					ł											
	Pred. No.	0.00e+00	0.00e+00	0.00e+00	0-+000+00	8.64e-50	4.01e-47	4.01e-47	3.93e-45	3.93e-45	8.29e-44	3.60e-41	1.63e-40	4.64e-32	1.15e-17	1.15e-17
	Description	Mus musculus secreted	Mus musculus secreted	Mouse SDF5 mRNA, compl	Homo sapiens secreted	Homo sapiens secreted	Homo sapiens secreted	Bos taurus frizzled-re	Homo sapiens secreted	Homo sapiens secreted	Mus musculus secreted	Sequence 14 from paten	Sequence 14 from paten	Gallus gallus crescent	Human frizzled homolog	Homo sapiens clone RGO
	Ð	MMU88567	AF017989	D50462	AF017986	AF017988	AF017987	BTU85945	AF001900	AF056087	MM088566	I66494	I66494	AF006508	HSU82169	AC005049
	В	22	22	22	Ľ	7	7	15	77	21	22	17	17	91	7	13
	Query Match Length DB	2028	2031	1776	882	1984	2094	4240	2075	4469	2659	7218	7218	2075	2184	106049
æ	Ouery Match	51.5	49.0	47.3	37.8	5.4	5.2	5.2	5.1	5.1	0.0	4.8	4.7	4.1	3.0	3.0
	Score	1043	993	959	166	110	106	106	103	103	101	97	96	83	9	9
	Result No.		~	m	4	ហ	Ø	7	œ	σ	10	c 11	12	13	14	c 15

15e-1 29e-1 33e-1 35e-1 55e-1 55e-1 55e-1		
Homo sapiens clone RG2 Human putative transme Gallus gallus 7 transm Mus musculus putative Mus musculus frizzled- Xenopus laevis secrete Xenopus laevis frizzle Drosophila melanogaste Drosophila melanogaste Homo sapiens chromosom Rattus norvegicus Dros Gallus gallus 7-transm	figures of from passible described general convegitors applies chromapaice of from passible described general convegitors and figures of from passible described general convegitors of from passible described gener	Mus musculus putative Plasmodium falciparum Plasmodium falciparum Dictyostelium discoide Escherichia coli K-12 Arabidopsis thaliana D Arabidopsis thaliana C Arabidopsis thaliana C E. coli chromosomal re
AC005074 HSU43318 AP031830 MMU43321 AF054623 AF012089 AF012089 AF012089 AC005369 RAFFRZH	6 6 6 10 10 70 H 1	MMC45320 PFSCO4015 PFSCO4015 DDU14576 ECAE000479 FRK4 ECCUW89
887 887 887 887 887 887 887 887 887	1923 21 215 17 215 17 215 17 215 17 215 17 215 17 215 17 220 19 200 14 200 14 200 14 200 14 200 14 200 15 200 17 200 15 200 10 200 1	720 720 720 720 720 720 720 720 720 720
0.0000000000000000000000000000000000000	210004410011000000000000000000000000000	
0	0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0	
0	99 03 AP	Ø€) Ø®®

ALIGNMENTS

RESULT 1 LOCUS DEFINITION ACCESSION NID	MMU88567 2028 bp mRNA ROD 22-APR-1997 Mus musculus secreted frizzled related protein sFRP-2 (Sfrp2) mRNA, COMP567 g1946342
SOURCE	house mouse. Mus musculus
	Eukaryotae, mitochondrial eukaryotes; Metazoa, Chordata; Vertebrata; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae: Mis.
REFERENCE AUTHORS	1 (bases I to 2028) Rattner, A., Hsieh, J.C., Smallwood, P.M., Gilbert, D.J., Cobeland, N.G., Jenkins, N.A. and Nathans, J
TITLE	A family of secreted proteins contains homology to the cysteine-rich ligand-hinding domain of frizzled resentors
JOURNAL	Proc. Natl. Acad. Sci. U.S.A. 94 (7), 2859-2863 (1997) 97250455
REFERENCE AUTHORS	2 (bases 1 to 2028) Ratther, A., Hasleh, JC., Smallwood, P.M., Gilbert, D.J., Coneland N. Tankins N. A. and Nathans J.
TITLE JOURNAL	Direct Submission Submitted (05-FEB-1997) Molecular Biology and Genetics, HHMI/Johns

```
qq
                           셤
                                                               요
                                                                                                 g
                                                                                                                                                                     g
                                              ð
                                                                                ò
                                                                                                                    å
                                                                                                                                 - 염
                                                                                                                                                     ò
                                                                                                                                                                                        ò
                                                                                                                                                                                                     음
                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                  ģ
                                                                                                                                                                                                                                                                                                                                                 ద
                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                    ద
                                                                                                                                                                                                                                                                                                                                                                                                       ç
                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                          å
                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                /product="secreted frizzled related protein sFRP-2"
/db_xref="PID:91946343"
/translation="MPRGPASILLIVIASHCCLGSARGLFLEGQPDESYKRSNCKPIP
ANDLCHGIEYQNMRLPHLAGHETMKEVLEQAGAWIPLYWKQCHPDTKKFLCSLFAPV
CLDBLDETIOPCHSLCVQVKGRCAPWKSAFGFPWPDMLECDRFPQDNDLCIPLASSDH
LLPATEBAPKVCEACKTKNEDDNDIMETLCKNNFALKIKVKETTYINROTKILLIETKS
KTIYKLNGVSERDLKKSVLWLKDSLQCTCEEMNDINAPYLVMGQKQGGELVITSVKRW
  PCTB
                                                                                                                                                                                                                                   24;
                                                                                                                                                                                                                                                                                       246
  Street,
                                                                                                                                                                                                                                                    186
                                                                                                                                                                                                                                                                     206
                                                                                                                                                                                                                                                                                                        266
                                                                                                                                                                                                                                                                                                                          306
                                                                                                                                                                                                                                                                                                                                          326
                                                                                                                                                                                                                                                                                                                                                            366
                                                                                                                                                                                                                                                                                                                                                                            386
                                                                                                                                                                                                                                                                                                                                                                                               426
                                                                                                                                                                                                                                                                                                                                                                                                               446
                                                                                                                                                                                                                                                                                                                                                                                                                                 486
                                                                                                                                                                                                                                                                                                                                                                                                                                                  506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   846
                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                    CCAGAGCCCCCACGAGCAGAGCGAGGGAGTCCCGGACGAGCTCGAGCTCCGGCCGCCTCT
                                                                                                                                                                                                                                                                    CCCGAGTCGCACCCAGCGAAGAGCGGGCCCGGGACAAGCTCGGAACTCCGGCCGCCTCG
                                                                                                                                                                                                                                                                                      CGCTTCCCCCGCTCGGCTCCTCGGCCCCCGGGGGTCGCTAGTCCACGATGCCGCGGGG
                                                                                                                                                                                                                                                                                                                                  CCCTTCCCCGGCTCCGCTCCCTCTGCCCCTCGGGGTCGCGCGCCCCACGATGCTGCAGGG
                                                                                                                                                                                                                                                                                                                         CCCTGCCTCGCTGCTGCTAGTCCTCGCCTCGCACTGCTGCCTGGGCTCGGCGCGTGG
                                                                                                                                                                                                                                                                                                                                                                                                       GGGCCACGAGACCATGAAGGAGGTGCTGGAGCAGGCGGGGGGCCCTGGATTCCGCTGGTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGACGACCTAGATGAGACCATCCAGCGTGTCACTCGCTCTGCGTGCAGGTGAAGGACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTGCGCCCCGGTCATGTCCGCCTTCGGCTTCCCCTGGCCAGACATGCTGGAGTGCGACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTGCGCCCCGGTCATGTCCGCCTTCGGCTTCCCCTGGCCCGACATGCTTGAGTGCGACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTTCCCGCAGGACAACGACCTCTGCATCCCCCTCGCTAGTAGCGACCACCTCCTGCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CATCATGGAAACCCTTTGTAAAATGACTTCGCACTGAAAATCAAAGTGAAGGAGATAAC
                                                                                                                                                                                                                                                                                                                                                           GCTCTTCCTCTTCGGCCAGCCCGACTTCTCCTACAAGCGCAGCAACTGCAAGCCCATCCC
                                                                                                                                                                                                                                                                                                                                                                                              CGCCAACCTGCAGGTGCCACGGCATCGAGTACCAGAACATGCGGCTGCCCAACCTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  34;
  North Wolfe
                                                                                                                                                                                                                 Length 2028;
                                                                                                                                                                                        others
                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                        Н
 725
                                                                                                                                                                                                                 Score 1043; DB 22;
Pred. No. 0.00e+00;
0; Mismatches 312;
  Medicine,
                                                                                                                                                                                        ų
                                                                                                                                                                                        492
                                  /organism="Mus musculus"
/db_xref="taxon:10090"
/chromosome="3"
/map="near Fgg"
236. 1123
                                                                                                                                                                               2KGQREFKRISRSIRKLQC"
586 c 480 q
ins University School of
Baltimore, MD 21205
Location/Qualifiers
1. .2028
                                                                                                                                                                                        480 g
                                                                  zsb. .1123
/gene="Sfrp2"
236. .1123
                                                                                                         /codon_start-1
                                                                                       236. .1123
/gene="Sfrp2"
                                                                                                                                                                                                                 51.5%;
larity 81.8%;
Conservative
                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                         ๙
  Hopkins
                                                                                                                                                                                       469
                                                                                                                                                                                                                                  1558;
                                                                                                                                                                                                                 Query Match
Best Local
                                                                                                                                                                                      BASE COUNT
ORIGIN
                                                                                                                                                                                                                         Best Loca
Matches
                                                                       gene
                                                                                                                                                                                                                                                    127
                                                                                                                                                                                                                                                                    147
                                                                                                                                                                                                                                                                                      187
                                                                                                                                                                                                                                                                                                      207
                                                                                                                                                                                                                                                                                                                        247
                                                                                                                                                                                                                                                                                                                                         267
                                                                                                                                                                                                                                                                                                                                                           307
                                                                                                                                                                                                                                                                                                                                                                            327
                                                                                                                                                                                                                                                                                                                                                                                              367
                                                                                                                                                                                                                                                                                                                                                                                                               387
                                                                                                                                                                                                                                                                                                                                                                                                                                427
                                                                                                                                                                                                                                                                                                                                                                                                                                                447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                787
                                                                                        CDS
                   FEATURES
                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                  do
Qy
                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                           g S
                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ωp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ô
```

```
1395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1445
                                                                                                                                                                                                    1046
                                                                                                                                                                                                                                  1086
                                                                                                                                                                                                                                                                                               1145
                                                                                                                                                                                                                                                                                                                                                           1205
                                                                                                                                                                                                                                                                                                                                                                                        1226
                                                                                                                                                                                                                                                                                                                                                                                                                      1265
                                                                                                                                                                                                                                                                                                                                                                                                                                                    1285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1924
                                                                                                           996
                                                                                                                                          986
                 866
                                                                                                                                                                                                                               GTGCACCTGTGAGGAGATGAACGACATCAACGCTCCGTATCTGGTCATGGGACAGAAGCA
                                                                                                                                                                                                                                                                                                                        GCGCATCTCCCGCAGCATCCGCAAGCTGCTAGTCCCGGCCATCCTGATGGCTCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITGCATCCCCAGCATITCCIGAGITATAAGGCCACAGGAG----TAGG-TG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTTTGCAAACTAAATCATTGTAGCTTACCTGTAATATACGTAGTAGTTGACCTGGAAAAG
                                              GTACATCAACAGAGACACCAAGATCATCCTGGAGACAAAGAGCAAGACCATTTACAAGCT
                                                             CIACATCAACCGAGATACCAAAATCATCCTGGAGACCAAGAGCAAGACCCATTACAAGCT
                                                                                                          GAACGGCGTGTCCGAAAGGGACCTGAAGAAATCCGTGCTGTGGCTCAAAGACAGCCTGCA
                                                                                                                                                                                                    GTGCACCTGTGAGGAGATGAACGACATCAACGCGCCCTATCTGGTCATGGGACAGAAACA
                                                                                                                                                                                                                                                                                               GCGCATCTCCCGCAGCATCCGCAAGCTGCAATGCTAGTTTCC-CAGTGGGTGGCTTCTCT
                                                                                                                                                                                                                                                                                                                                                                         CAGGCCTGCTCCAGAGCACGCTGACCATTCTGCTCCGGGATCTCAGCTCCCGTTCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                    AAGCACAGTCCGGGAAAGCTACAGCCCCAGCTTGGAGCCGCTTGCCCTGCCTCCTGCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAGCACACTCCTAGCT - GCTCCAGTCTCAGCCTGGGCAGCTTCCCCCTGCCTTTTGCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATGACTATTTTTATGAAGTTTTAGAACAGCTCGTTTTAAGGTTAGTTTTGAATAGCTGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -CACAGTAACCATTCCTCATTGCATGATGCCCTCAAATAAAAAGTGAATACAGTCTATAA
                                                                                                                                                                                                                                                                                                                                                          CCATCCAGGCCCTGAGCTCTGTAGACCACTTCCGCTCCGGCACCTCATTTCCGGTTTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGTGTATCCCTAACATGTCCTGAGTTATAAGGCCCTAGGAGGCTTGGAAACCCATAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTTTCACGGAAAGCGCAAAAGCCCATCCAGATCTTGTACAAATATTCAAAATATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTACTTTGACCCGAGGCATTTTCTCTCTTTGGTCAGTCTGTTGGCTTATACCGTGCACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCACTICCCAC-TGAGGIIGICAIAACAIGCAAATIGCIICAAITITCICIGIGGCCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCTTGTGGGNCCCAGACTTAGTTGAGATAAAGCTGGCTGTTATCTCAAAGTCTTCCTCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TICCAGGCCIGAGAAICGGCAICIAAGICIICAAACAITICGIIGCICGIIIIAAIGCCCI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CATGAGCTCTGACCATTGCATGCGTTCCCATCCCAGCTACAGAACTTCAGTTTATAAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCACATTAACCATTTCT-ATAGCATGATTTCTTCAAGTAAAAGGCAAA-AGA-TATA-AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTGACGAGTATTTTAAGCTTTTTAAAACATCTTTTAATTCAATTTTTAATCATTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITIATAATIGACTIGAG - - TACTITAAGCCTIGITIAAAA - CA - TITCTIACTIAACTI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTCCAGAC - TGAGACTCAGTGTCTAAGTCTTACAACAATTCATCATTTATACCTTCAAT
                                                                            867
                                                                                                                                                                                                                                                             1047
                                                                                                                                                                                                                                                                                                                          1107
                                                                                                                                                                                                                                                                                                                                                          1146
                                                                                                                                                                                                                                                                                                                                                                                      1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                  1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1745
                                                                                                                                                                                                                                  1027
                                                                                                                                                                                                                                                                                             1087
                                                                                                                                                                                                                                                                                                                                                                                                                    1206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1801
                 807
                                               847
                                                                                                          907
                                                                                                                                        927
                                                                                                                                                                      967
                                                                                                                                                                                                    987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1865
```

```
927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1403
                     385
                                                                445
                                                                                     447
                                                                                                           505
                                                                                                                               507
                                                                                                                                                                         267
                                                                                                                                                                                                 625
                                                                                                                                                                                                                    627
                                                                                                                                                                                                                                            685
                                                                                                                                                                                                                                                               687
                                                                                                                                                                                                                                                                                       745
                                                                                                                                                                                                                                                                                                                               802
                                                                                                                                                                                                                                                                                                                                                     807
                                                                                                                                                                                                                                                                                                                                                                                                                     925
                                                                                                                                                     565
                                                                                                                                                                                            유
                                                                                                                                                                                                                                       ద
                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                   οŽ
                                                                                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                                  유
                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          염
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                õ
               ద
                                          ò
                                                               d
                                                                                    à
                                                                                                       g
                                                                                                                               οχ
                                                                                                                                                ద
                                                                                                                                                                        ŏ
                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /translation="MPRGPASILLLVIASHCCLGSARGLFLFGQPDFSYKRTNCKPIP
MIQLCHGIBYQNMRLPNLLGHETMKEVLEQAGAWIPLVWRQCHPDTKKFLCSLFAPV
CLDDLDETIOPCHSLCVQVKDKCAPVWASAFGFPWPDMLECDRFPQDNDLCIPLASSDH
LLPATEBARVCEAGYKTKNDDNDIMETLCKNDFALKIKVKEITYINRDTKILLETKS
KTIYKLNGVSERDLKKSVLWLKDSLQCTCEEMNDINAPYLVMGQKGGELVITSVKRW
                                                                                                                                                                                                                                                                                                                                 Way
                   1857 TTGCA-AATTAAACCCATTGTAGCTTACCTGTAATATACATAGTAGTAGTTTACCTTTAAAAG 1915
                                                                                                                        ROD 21-SEP-1997
protein 1 (Sappl) mRNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           206
                                                                                                                                                                                                                    Eukaryotae; Metazoa; Chordata; Vertebrata; Mammalla; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.

1 (bases 1 to 2031)
Melkonyan, H., Chang, W.C., Shapiro, J.P., Mahadevappa, M., Fitzpatric, P.A., Kiefer, M.C., Tomei, D.L., and Umansky, S.R. SARPs - a new family of proteins that regulate apoptosis Unpublished
                                                                                                                                                                                                                                                                                           Observation (1) 2031)
Melkonyan, H., Prochazka, V. and Umansky, S.R.
Direct Submission
Submitted (11-A00-1997) LXR Biotechnology, Inc., 1401 Marina South, Richmond, CA 94804, USA
Location Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGCTICCCCCGCTCGGCTCCCTCCGCCCCCCGGGGGTCGCTAGTCCACGATGCCGCGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCAGAGCCCCCACGAGCAGAGCGAGGAGTCCCGGACGAGCTCGAGCTCCGGCCGCCTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCTCTTCCTCTTCGGCCAGCCCGACTTCTCCTACAAGCGCACGAACTGCAAGCCCATCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCCTTCCCCGGCTCCGCTCCCTCTGCCCCTCGGGGTCGCGCCCCACGATGCTGCAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCCTGCCTCGCTGCTGCTAGTCCTCGCCTCGCACTGCTGCCTGGGCTCGGCGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="secreted apoptosis related protein 1"
/db_xref="PID:g2415421"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels 36;
                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="Sarpl"
254. .1141
/note="similar to frizzled-like receptor CRD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 2031;
                                                              cells"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 993; DB 22; L
Pred. No. 0.00e+00;
0; Mismatches 313;
                                                                                                                                                                                                                                                                                                                                            1. .2031
/organism="Mus musculus"
/db_aref="taxon:10090"
/cell_line="1011/2 quiescent ce/dev_stage="embryo"
/. .2031
                                                                                                                               AF017989 2031 bp mRNA
Mus musculus secreted apoptosis related
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            495 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QKGQREFKRISRSIRKLQC"
591 c 485 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           485 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          49.0%; S
larity 81.3%; F
Conservative
                                                                                                                                                    complete cds.
AF017989
g2415420
                                                                                                                                                                                                house mouse.
Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1522; Conservation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                     7
                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Loca
Matches
                                                                1985
                                                                                    1975
                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                        TITLE
JOURNAL
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                         REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          265
                                                                                                                                                               ACCESSION
                                                                                                                                                                                   KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     325
                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                     RESULT
                    გ
                                                               g
                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
```

```
1402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1107 GCGCATCTCCCGCAGCATCCGCAACTGCTAGTCCCGGCATCCTGATGGCTCCGA 1166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGTGTATCCCTAACATGTCCTGAGTTATAAGGCCCTAGGAGGCCTTGGAAACCCATAGCT 1342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1395 CATGAATATTTTTATGAAGTTTAAAAATAGCTCACTTTAAAAGCTAGTTTTGAATAGGTGC 1454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  506
                                                                                                                                                                                                    566
                                                                                                                                                                                                                                     624
                                                                                                                                                                                                                                                                     626
                                                                                                                                                                                                                                                                                                                                         686
                                                                                                                                                                                                                                                                                                                                                                            744
                                                                                                                                                                                                                                                                                                                                                                                                           746
                                                                                                                                                                                                                                                                                                                                                                                                                                            804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 984
                                                                                                   504
                                                                                                                                                                     564
                                                                                                                                                                                                                                                                                                         684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CIGCGCCCCGGTCATGTCCGCCTTCGGCTTCCCCTGGCCAGACATGCTGGAGTGCGACCG
                                                                                                                                                                                                                                                                                                                           747 CACCGAGGAAGCTCCAAAGGTATGTGAAGCCTGCAAAAATAAAAATGATGATGACAACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CATCATGGAAACCTTTGTAAAAATGACTTCGCACTGAAAATCAAAGTGAAGGAGATAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CATAATGGAAACGCTTTGTAAAATGATTTTGCACTGAAAATAAAAGTGAAGGAGATAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGGCGCCGAACTGGTGATCACCTCCGTGAAACGGTGGCAGAAGGGCCCAGAGAGATTCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAGGCCTGCTCCAGAGCACGGCTGACCATTCTGCTCCGGGATCTCAGCTCCCGTTCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1223 AAGCACAGTCCGGGAAAGCTACAGCCCCAGCTTGGAGCCGCTTGCCCTGCCTCCTGCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTTTTCACGGAAAGCCGAAAAGCCCATCCAGATCTTGTACAAATATTCAAACTAAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCTCTTCCTCTTTGGCCAGCCCGACTTCTCCTACAAGCGCAGCAATTGCAAGCCCATCCC
                                                    GIGCACCIGIGAGGAGAIGAACGACAICAACGCICCGIAICIGGICAIGGGACAGAAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCGCATCTCCCGCAGCATCCGCAAGCTGCAATGCTAGTTTCCCAGTGGGGTGGCTTCTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITGCATCCCCAGCATTTCCTGAGTTATAAGGCCACAGGAG----TGGA----TAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CATGACTATTTTATGAAGTTTTAGAACAGCTCGTTTTAAGGTTAGTTTTGAATAGCTGT
                                  CGCCAACCTGCAGCTGTGCCACGGCATCGAGTACCAGAACATGCGGCTGCCCAACCTGCT
                                                                                                     GGGCCACGAGACCATGAAGGAGGTGCTGGAGCAGGCGGCGCCCTGGATTCCGCTGGTCAT
                                                                                                                                                                                                                                       CGACGACCTAGATGAGACCATCCAGCCGTGTCACTCGCTCTGCGTGCAGGTGAAGGACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAACGGCGTGTCCGAAAGGGACCTGAAGAAATCCGTGCTGTGGCTCAAAGACAGCCTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCATCCAGGCCCTGAGCTCTGTAGACCACTTGC-CTCCGG-ACCTCATTTCCGGTTTCCC
```

4

8 δy g g

ò

CD

5

g

δ

유

ò

g

ò

g

ò

g

ò

g

```
Query Match
                                 source
                                                                                                                                                                                                                                                                                      COUNT
                                                                                                                                                                                                                                                                                                                                                                                     σ
                                                                                                                                                                                                                                                                                                                                                                                                                                            69
                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       851
                                                                                                                             CDS
                 FEATURES
                                                                                                                                                                                                                                                                                    BASE CC
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                     ద
                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .
G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2 (bases 1 to 1776)
Shirozu,M., Tada,H., Nakamura,T., Nelson,L.D., Martina,N.,
Hamada,T., Sato,T., Tashiro,K., Nakano,T. and Honjo,T.
Isolation of novel genes encoding for escreted or membrane proteins using signal sequence trap
Unpublished (1995)
3 (bases 1 to 1776)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Direct Submission
Submitted (01-MAY-1995) to the DDBJ/EMBL/GenBank databases. Michio
Shirozu, Kyoto University, Faculty of Medicine, Department of
Medical Chemistry; Yoshida, Sakyo-ku, Kyoto, Kyoto 606, Japan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (lgt22a)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Shirozu,M., Tada,H., Tashiro,K., Nakamura,T., Lopez,N.D., Nazarea,M., Hamada,T., Sato,T., Nakano,T. and Honjo,T. Characterization of novel secreted and membrane proteins isolated by the signal sequence trap method Genomics 37 (3), 273-280 (1996)
                                                                                                               1642
                                                                                                                                                                     1702
                                                                                                                                                                                                                            1762
                                                                                                                                                                                   1686 TGG-GAACTTAAACTGTTACATGTAT-CACATTCCAGCTACAATACTTCCATTTATTAGA 1743
                                                                                                                                                                                                                                                                                                 1941
                                                                                                                                                                                                                                                                                                                                                                                                               1856 TITICCA-AATTAAACCCATTGTAGCTTACCTGTAATATACATAGTAGTTTACCTTTAAAA 1914
                                                                                                                                                                                                                                                                                                                                                                                                                                                        2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1915 GIIGTAAAAATAITGCIIIAAACCAACACIGTAAAIAITICAGATAAACAITATATITI 1973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Muridae;
                                                                                                                                                                                                                                                                                   A-CACAGTAACCATTCCTCATTGCATGATGCCCTCAAATAAAAGTGAATACAGTCTATA 1821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             24-DEC-1996
 AGTACTTTGACCCGAGGGGCATTTTCTCTCTTTGGTCAGTCTGTTGGCTTATACCGTGCA
                                                                                TITCACITCCCAC-TGAGGTTGTCATAACATGCAAATTGCTTCAATTTCTCTGTGGCCC
                                                                                                            AGTICCAGCCTGAGAATCGGCATCTAAGTCTTCAAACATTTCGTTGCTCGTTTTATGCCC
                                                                                                                                                                                                                            TCATGAGCTCTGACCATTGCATGCGTTCCCATCCCAGCTACAGAACTTCAGTTTATAAGC
                        A -- ACTGTGACTTGGGTCGGTTGGTTGTTTGTT-GT-T-TTGAGTCAG--C-TGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                     1942 GITGTAAAAATAITGCTTTAACCGACACTGTAAATAITTCAGATAAACAITAIAITCTIT
                                                      1822 AATTGACGAGTATTTTAAGCTTTTGTTTAAAACATCTTTTAATTCAATTTTTAATCATTT
                                                                                                                                                                                                                                                                                                                                                                                               1882 ITTTIGCAAACTAAATCATIGTAGCTTACCIGTAATATACGTAGTAGTIGACCTGGAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      to mRNA, clone_lib:phage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryotae, mitochondrial eukaryotes, Metazoa, Chordata,
Vertebrata, Mammalia, Eutheria, Rodentia, Sciurognathi,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ROD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mus musculus cell_line:ST-2 cDNA library, ST-2 directional 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SDF5 mRNA, complete cds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2002 GTATATAACT 2012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (sites)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Shirozu, M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mouse SDF
D50462
g1747301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97092876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                D50462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SDF5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LOCUS
                          1455
                                                      1523
                                                                                1507
                                                                                                             1583
                                                                                                                                        1566
                                                                                                                                                                                              1626
                                                                                                                                                                                                                                                                                 1763
                                                                                                                                                                                                                                                                                                                                                                   1800
1463
                                                                                                                                                                                                                           1703
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
NID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                     1643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
```

```
/db_xref-"PID:91147302"
/translation="MPRGPASILINVLASHCCLGSARGLFLFGQPDFSYKRSNCKPIP
ANALCHGIETVONMALPHLJAGHETWRFLEQAGAMPLPLWARCHPDFFKFLCSELFAPV
CLDDLDFTLOPCHSLCANVKORCAPYMSAFGFPWPDMLECDRFPQDNDLCIFLASSDH
LLPATEEAPKVCEACKTKNEDDNDIMFTLCKNDFALKIKVKEITYINNDFKIILETKS
KTIYKLNGVSERDLKKSVLMTKDSLQCTCEEMNDINAPYLVNGGKQGGELVITSVKRW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          23;
                                                                                                                               <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGGCTCGGCGCGTGGCCTCTTCCTTCGGCCCAGCCCGACTTCTCCTACAAGCGCAGCA 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               608
                                                                                                                /clone_lib-"phage (lgt22a) library, ST-2 directional 14..901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            669 AGACCATITACAAGCTGAACGGCGTGTCCGAAAGGGACCTGAAGAAATCCGTGCTGTGGC 728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9
(E-mail:kondo@virus1.virus.kyoto-u.ac.jp, Tel:81-75-753-4377,
Fax:81-75-753-4388)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCGCCCCTGTCTGTCTCGACGACCTAGATGAGACCATCCAGCCGTGTCACTCGCTCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCACGATGCCGCGGGGCCCTGCTCGCTGCTGCTAGTCCTCGCCTCGCACTGCTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGCAGGTGAAGGACCGCTGCGCCCCGGTCATGTCCGCCTTCGGCTTCCCCTGGCCAGACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGCTTGAGTGCGACCGTTTCCCCCAGGACAACGACCTTTGCATCCCCCTCGCTAGCAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACTGCAAGCCCATCCCCGCCAACCTGCAGCTGTGCCACGGCATCGAGTACCAGGAACATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGCTGCCCAACCTGCTGGGCCACGAGACCATGAAGGAGGTGCTGGAGCAGGCGGGGCGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCTGCCCAACCTGCTGGGCCACGAGCATGAAGGAGGTGCTGGAGCAGGCCGGCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGCTGGAGTGCGACCGTTTCCCGCAGGACAACGACCTCTGCATCCCCCTCGCTAGTAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCACCTCCTGCCGGCCACAGAGGAAGCTCCCAAGGTGTGTGAAGCCTGCAAAACCAAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           549 ATGAGGACGACAACGACATCATGGAAACCCTTTGTAAAAATGACTTCGCACTGAAAATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAGTGAAGGAGATAACGTACATCAACAGACACCAAGATCATCCTGGAGACAAAGAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          34;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 1776;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Mismatches 286; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 959; DB 22;
Pred. No. 0.00e+00;
                                                                                                                                                                                                                                                                                                                                                                                               455 t
                                                                           musculus
                                                                                                                                                                                                                                            /db_xref-"PID:d1009688"
                                                                   /organism="Mus musculu
/db_xref="taxon:10090"
/cell_line="ST-2"
                                                                                                                                                                                                                                                                                                                                                                           QKGQREFKRISRSIRKLQC"
                                Location/Qualifiers
1. .1776
                                                                                                                                                                                                                                                                                                                                                                                             405 g
                                                                                                                                                                                                                        /codon_start=1
                                                                                                                                                                  /qene="SDF5"
                                                                                                                                                                                                     /gene="SDF5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                 47.3%;
larity 81.9%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                               483 C
                                                                                                                                                                                   . .901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                               433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local Simi
Matches 1449;
```

```
1150
                                                                                                                                                                                                                             1148
                                                                                                                                                                                                                                                                             1438
                                                                                                                                                                                                                                                                                             1268
                                                                                                                                                                                                                                                                                                                            1328
                                                                                                                                                                                                                                                                                                                                                                                            1448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1840
                                                                                                                                                                                                                                                                                                                                                                    848
                                  CCCTGCCTCCTGCATGTGTATCCCTAACATGTCCTGAGTTATAAGGCCCTAGGAGGCC
                                                                                                                                                                                                    GTGGGGTGGCTTCTCTCCATCCAGGCCCTGAGCTCTGTAGACCACTTCCGCTCCGCGACC
                                                                                                                                                          TCATTTCCGGTTTCCCAAGCACAGTCCGGGAAAGCTACAGCCCCAGCTTGGAGCCGCTTG
                                                                                                                                                                     TCAGCTCCCGTTCCCCAAGCACACTCCTAGCT-GCTCCAGTCTCAGCCTGGGCAGCTTCC
                                                                                                                                                                                                                                                           TTCAAACTAATAAAATCATGACTATTTTTATGAAGTTTTTAGAACAGCTCGTTTTAAGGTT
                                                                                                                                                                                                                                                                           TTCAAACTAATAAAATCATGAATATTTTTATGAAGTTTAAAAATAGCTCACTTTAAAAGCT
                                                                                                                                                                                                                                                                                                                           TCATGGGACAGAAGCAGGGGGGGGGGGGTGATCACCTCCGTGAAACGGTGGCAGAAGG
                                                                                         GCCAGAGAGAGTTCAAGCGCATCTCCCGCAGCATCCGCAAGCTGCAATGCTAGTTTCCCA
                                                                                                                                                                                                                                                                                          AGTTTTGAATAGCTGTAGTACTTTGACCCGAGGGGCATTTTCTCTCTTTGGTCAGTCTGT
                                                                                                                                                                                                                                                                                                                                                           TCTCAAAGTCTTCCTCAGTTCCAGCCTGAGAATCGGCATCTAAGTCTTCAAACATTTCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACTICAGITIAIAAGCA-CACAGIAACCATICCICAIIGCAIGAIGCCCICAAAIAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTGAATACAGICTATAAATTGACGAGTATTTTAAGCTTTGTTTAAAACATCTTTTAATTC
                         TCAAAGACAGCCTGCAGTGCACCTGTGAGGAGATGAACGACATCAACGCTCCGTATCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AATITITIAATCATITITITIGCAAACTAAATCATTGTAGCTTACCTGTAATATACGTAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TAGTIGACCTGGAAAAGTTGTAAAAATATTGCTTTTAACCGACACTGTAAATATTTCAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAACAITATATICTITGTATAAAACITI 1776
                                        971
                                                         789
        911
                        729
                                                                         1031
                                                                                         849
                                                                                                         1091
                                                                                                                          606
                                                                                                                                          1151
                                                                                                                                                                         1211
                                                                                                                                                                                           1029
                                                                                                                                                                                                         1270
                                                                                                                                                                                                                                                           1149
                                                                                                                                                                                                                                                                          1379
                                                                                                                                                                                                                                                                                          1209
                                                                                                                                                                                                                                                                                                          1439
                                                                                                                                                                                                                                                                                                                                                          1329
                                                                                                                                                                                                                                                                                                                                                                          1550
                                                                                                                                                                                                                                                                                                                                                                                           1389
                                                                                                                                                                                                                                                                                                                                                                                                          1610
                                                                                                                                                                                                                                                                                                                                                                                                                                           1670
                                                                                                                                                                                                                                                                                                                                                                                                                                                           1509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1899
                                                                                                                                                          696
                                                                                                                                                                                                                                                                                                                           1269
                                                                                                                                                                                                                                                                                                                                           1494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1748
                        엄
                                                       g
                                                                                        Dp
                                                                                                         ò
                                                                                                                       g
                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                        Dp
                                        ò
                                                                         οy
                                                                                                                                         ò
                                                                                                                                                        g
                                                                                                                                                                    ò
                                                                                                                                                                                                        ò
                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                         d
                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                      gg
                                                                                                                                                                                                                                                                                                                                                                                                                                          ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
```

```
/product="secreted apoptosis related protein 1"
/db_xref="PID:92415415"
/db_xref="PID:92415415"
/translation="MIQGPGSILLIFIASHCCLGSARGLFLEGQPDFSYKRSNCKPIP
ANLOCHGIETYGNMRLPNLIGHETMKEVLEQAGAWIPLVMKQCHPDTKKFLCSLFAPV
CLDDLDETIOPCHSKCVQVKDRCAPVMSAFPWPDMLECDRFPGDNDLCIPLASSDHLL
PATEEAPKVCEACKNKNDDDNDIMETICKNDFALKIKVKEITYINR"
1318 c 233 g 163 t 1 others
                                                                                                             21-SEP-1997
(SARP1) mRNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               376
                                                                                                                                                                                                                                                                                                                                        Mammalia; Eutheria:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Marina
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTGGCTCATTCTGCTCCCCCGGGTCGGAGCCCCCCGGAGCTGCGCGCGGGCTTGCAGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTCGCCCGCGCTGTCCTCCCGGTGTCCCGCTTCTCCGCGCCCCCAGCCGGCCTGCCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITICGGGGCCCCGAGTCGCACCCAGCGAAGAGCGGGCCCGGGACAAGCTCGAACTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGCTGCAGGGCCCTGGCTGCTGCTGCTCTTCCTCGCCTCGCACTGCTGCTGGGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGCCGCCTCGCCCTTAACCAGCTCCG-TCCCTCTACCCCCTAGGGGGTCGCGC--CCACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGGCGCGCGCGCTCTTCCTCTTTGGCCAGCCCGACTTCTCCTACAAGCGCAGCAATTGCA
                                                                                                                                                                                                                                                                                                                                                                                      1 (bases 1 to 882)

Makakanyan, H., Chang, W.C., Shapiro, J. P., Mahadevappa, M., Fitzpatric, P.A., Kiefer, M.C., Tomel, D.L. and Umansky, S. R. SARPS - a new family of proteins that regulate apoptosis Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 766; DB 21; Length 882;
Pred. No. 0.00e+00;
0; Mismatches 10; Indels 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        On The Control of the Control of the Control of Control
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      receptor CRD"
                                                                                                                                       protein 1
                                                                                                                                                                                                                                                                                                                                     Eukaryotae; Metazoa; Chordata; Vertebrata;
Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="SARP1"
265. >882
/gene="SARP1"
/note="similar to frizzled-like
/codon_start=1
                                                                                                          882 bp mRNA secreted apoptosis related
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="4"
AAACATTATATTCTT-GTATATAAACTTT 1986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 37.8%;
Best Local Similarity 97.6%;
Matches 841; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1. .882
                                                                                                                                       Homo sapiens s
partial cds.
AF017986
g2415414
                                                                                                                                                                                                                                                                                                              Homo sapiens
                                                                                                          AF017986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         167
                                                                             RESULT 4
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
JOURNAL
1959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         317
                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                               KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORIGIN
ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
```

4

AGCCCATCCCGGCCAACCTGCAGCTGTGCCACGGCATCGAATACCAGAACATGCGGCTGC 445

386

g

g ò g δ 8 ò 9 ò 음

ò g ò g ò

```
| || CACCGTTCCCCCAGGACACGACCTTTGCATCCCC 717
                                                                                                                                                                                                                                                                                                                                                                                                                              671 CCACAAGTTCCCCCTGGACAACGACCTCTGCATCGCC 707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="8"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /tissue_type="heart"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="SARP2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene-"SARP2"
                                                                                                         th 5.4%;
Similarity 73.0%;
246; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .1247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein"
                                                                     ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             92415416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        human.
                                                                                                          Query Match
                                                                                                                        Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              φ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LOCUS
DEFINITION
                                                                 BASE COUNT
ORIGIN
                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                 440
                                                                                                                                                                                                                                                                                                                                                 561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
JOURNAL
                                                                                                                                                                                                                                                                   500
                                                                                                                                                                                                                                                                                             501
                                                                                                                                                                                                                                                                                                                       560
                                                                                                                                                                                                                                                                                                                                                                                                                                                        681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                             ద
                                                                                                                                                                                       δy
                                                                                                                                                                                                               ద
                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                  ద
                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="secreted apoptosis related protein 3"
/db_xref="PID:92415419"
/translation="MRAAAAAGGVRTAALALLLGALHWAPARCEEYDYYGWQAEPLHG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2 (Dases I to 1984)
Melkonyan, H., Prochazka, V. and Umansky, S.R.
Direct Submission
Submitted (11-AUG-1997) LXR Biotechnology, Inc., 1401 Marina Way
South, Richmond, CA 94804, USA
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="similar to frizzled-like receptor, extracellular
                                                   565
                                                                                                                                              CCGTCTGCCTCGATGACCTAGACGAGCCATCCAGCCATGCCACTCTCGNTGCGTGCAGG 625
                                                                                                                                                                                                  619
                                                                                                                                                                                                                                                                                                       21-SEP-1997
3 (SARP3) mRNA,
                                                                                                                     556
                                                                                                                                                                        CCGTCTGCCTCGATGACCTAGACGAGACCATCCAGCCATGCCACTCGCTCTGCGTGCAGG 616
                                                                                                                                                                                                                                                      AGTGCGACCGTTTCCCCCAGGACAACGACCTTTGCATCCCCCTCGCTAGCAGCGACCACC 739
                                                                                                                                                                                                                                                                             677 AGTGCGACCGTTTCCCCCAGGACAACGACCTTTGCATCCCCCTCGCTAGCAGCGACCACC 736
                                                                                                                                                                                                                                                                                                                                                                          TGAAGGACCGCTGCGCCCCGGTCATGTCCGCCTTCGCCTTCCCCTGGCCCGACATGCTTG 676
                                                                                                                                                                                                                                                                                                                                                              ATGACAACGACATAATGGAAACGCTTTGTAAAAATGATTTTGCACTGAAAATAAAAGTGA 859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens
Eukaryotae; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;
Primates; Catarrhini; Hominidae; Homo
TGAAGGATCGCTGCGCCCGGTCATGTCCGCCTTC-----CCCTGGCCCGACATGCTTG
                                       CCAACCTGCTGGGCCACGAGACCATGAAGGAGGTGCTGGAGCAGGCGGGGGCGTTGGATCC
                                                                                           1 (bases 1 to 1984)
Melkonyan, H., Chang, W.C., Shapiro, J.P., Mahadevappa, M.,
Fitzpatric, P.A., Kiefer, M.C., Tomel, D.L. and Umansky, S.R.
SARPs - a new family of proteins that regulate apoptosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hower sapiens secreted apoptosis related protein complete cds.

92415418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="15"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'tissue_type="pancreas"
                                                                                                                                                                                                                                                                                                                                                                                                                              AGGAGATAACCTACATCAACCG 881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="SARP3"
216. .1169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   216. .1169
/gene="SARP3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                860
                                                                                                                                                                                                                                                                                                                                                                                      797
                                                                                                                                                                                                                                                                                                                                                                                                                                         857
            377
                                       446
                                                                437
                                                                                          206
                                                                                                                  497
                                                                                                                                              266
                                                                                                                                                                        557
                                                                                                                                                                                                  626
                                                                                                                                                                                                                         617
                                                                                                                                                                                                                                                    680
                                                                                                                                                                                                                                                                                                                                                            800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
                                                                                                                                                                                                                                                                                                                                                                                                         Op
```

```
RSYSKPPQCLDIPADLPLCHTVGYKRMRLPNLLEHESLAEVKQQASSWLPLLAKRCHS
DTQVFLCSLFAPVCLDRPIYPCRSLCEAVRAGCAPLMEAYGFPWPEMLHCHKFPLDND
LCIAYQFGHLPATAPPYTKICAQCEMEHSADGLMEQMCSSDFVVKMRTKEIKTENGDR
KLIGAQKKKLLKFGPLKRKDTKRLVLHMKNGAGCPCPQLDSLAGSFLVMGRKVDGQL
LLMAYYRWDKKNKETAVKFMFSYPCSLYYPFFYGAAEPH"
634 c 627 g 370 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="secreted apoptosis related protein 2"
/db_xref="PID:g2415417"
/translation="MGIGRSEGGRRGAALGVLLALGAALLAVGSASEYDYVSFQSDIG
                                                                                                                                                                                                                                                      ب.
س
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SAkrs __
Unpublished
2 (bases 1 to 2094)
Melkonyan,H., Prochazka,V. and Umansky,S.R.
Direct Submission
Direct Submission
Submitted (11-AUG-1997) LXR Biotechnology, Inc., 1401 Marina Way
South, Richmond, CA 94804, USA
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="similar to frizzled-like receptor, extracellular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AF017987 2094 bp mRNA PRI 21-SEP-1997
Homo sapiens secreted apoptosis related protein 2 (SARP2) mRNA,
AF017987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens
Eukaryotae; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;
Primates; Catarrhini; Hominidae; Homo.
1 (Dases 1 to 2094)
Melkonyan,H., Prochazka,V., Chang,W.C. and Umansky,S.R.
SARPs. a new family of proteins that regulate apoptosis
                                                                                                                                                                                                                                                                                                                                                 381 CATCCCGGCCAACCTGCAGCTGTGCCACGGCATCGAATACCAGAACATGCGGCTGCCCAA 440
                                                                                                                                                                                                                                                                                                                                                                                                    499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              670
                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            380 CATCCCTGCCGACCTGCCGCTCTGCCACACGGTGGGCTACAAGCGCATGCGGCTGCCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                             CTGTCTCGA----CG-GCCCATCTACCCGTGCCGCTGTGCGAGGCCGTGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                611 CGCCGGCTGCGCCGCTCATGGAGGCCTACGGCTTCCCCTGGCCTGAGATGCTGCACTG
                                                                                                                                                                                                                                                                                                                                                                                                 6
                                                                                                                                                                                                   Length 1984;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 110; DB 21; Length 19
Pred. No. 8.64e-50;
0; Mismatches 82; Indels
```

ŝ

ģ

508

590 619 650

g

ò

g

ò

ò

셤

õ

g

```
IAMTPPNATEASKPOGTTVCPPCDNELKSEAIIEHLCASEFALRMKIKEVKKENGDKK
IVPKKKKPLKLGPIKKKELKKLVLYLKNGADCPCHQLDNLSHHFLIMGRKVKSQYLLT
AIHKWDKKNKEFKTFMKKMKNHECPTFQSVFK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Purification and Molecular Cloning of a Secreted, Frizzled-Related
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AF001900 2075 bp mRNA PRI 25-JUN-1997
Homo sapiens secreted frizzled-related protein mRNA, complete cds.
AF001900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens
Eukaryotae, mitochondrial eukaryotes, Metazoa, Chordata,
Vertebrata, Mammalia, Eutheria, Primates, Catarrhini, Hominidae,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGTCTTCCTGTGCTCGTCTTCGCGCCCGTCTGCCT-G--GACCG-G-C---CCATCTA 559
                                                                                                                                                                                                                                                           CTTCTACACCAAGCCACCGCAGTGCGTGGACATCCCGGCAGACCTGCGGGCTGTGCCACAA 388
                                                                                                                                                                                                                                                                                      GAAGCAGCAGCCAGCAGCTGGTGCCCCTGCTCAACAAGAACTGCCACATCGGCACCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                          471 GCTGGAGCAGGCCGGCGCTTGGATCCCGCTGGTCATGAAGCAGTGCCACCCGGACACCAA
                                                                                                                                                                                                                                                                                                                                        389 CGIGGGCIACAAGAGGAIGGIGCIGCCCAACCIGCIGGAGCACGAGACCAIGGCCGAGGI
                                                                                                                                                                                                                                                                                                                                                                               411 CATCGAATACCAGAACATGCGGCTGCCCAACCTGCTGGGCCACGAGACCATGAAGGAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                560 CCCGTGCCGCTGCCTCTGCGAGGCCGTGCGCGACTCGTGCGAGCCGGTCATGCAGTTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     591 GCCATGCCACTCGCTCTGCGTGCAGGTGAAGGACCGCTGCGCCCCGGTCATGTCCGCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 (bases 1 to 2075)

Fiffofth, P.W., He, X., Kelley, M.J., Uren, A., Schaudies, R.P.,

Fupescu, N.C., Rudikoff, S., Aaronson, S.A., Varmus, H.E. and
Rubin, J.S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Rockville
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DBS/NCI, 9000 Rockville
                                                                                                                                                                                  Length 4240;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           620 CGCCTTCTACTGGCCCGAGATGCTCAAGTGCGACAAGTTCCCGAGGGCGACG
                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Antagonist of Wnt Action
Proc. Natl. Acad. Sci. U.S.A. (1997) In press
2 (bases 1 to 2075)
2 Archch, P. W., Aaronson, S.A. and Rubin, J.S.
                                                                                                   /note="encodes N-glycosylation site"
1073 c 1112 g 1040 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Submitted (30-APR-1997) LCMB, DBS/NCI, 9000
Bethesda, MD 20892, USA
                                                                                                                                                                                                                         92;
                                                                                                                                                                              Score 106; DB 15;
Pred. No. 4.01e-47;
0; Mismatches 92;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Finch, P.W., Aaronson, S.A. and Rubin, J.S. Direct Submission Submitted (09-401-1997) LCMB, DBS/NCI, 99 Bethesda, MD 20892, USA Sequence update by submitter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="8"
/map="8pll.1-pl2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                              5.2%;
larity 71.4%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (bases 1 to 2075)
                                                            210. .263
966. .968
                                                                                                                                                                                                  Similarity
                                                                                                                         ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        92213818
                                                                                                                       1015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              human.
                                                              sig_peptide
misc_feature
                                                                                                                                                                              Query Match
Best Local Simil
Matches 252;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ထ
                                                                                                                     BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                           329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   509
                                                                                                                                                                                                                                                                                                                                                                                                                      449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REMARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOURCE
                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
PYQSGRFYTKPPQCVDIPADLRLCHNVGYKKMVLPNILLEHETMAEVKQQASSWVPLLN
KNCHAGTQVFLCSLFAPVCLDRPIYPCRWLCEAVRDSCEPVWQFFGFYWPEMLKCDKF
PEGDYVIANTPPNPTEASKPQGTTVCPPCDNELKSEAIIEHLCASEFALRWKIKEVKK
SOYLLTAINTPANTPPNPTEASKPQGTTVCPPCDNELKSEAIIEHLCASEFALRWKIKEVK
SOYLLTAIHKWDKKKEFKNEWKKMKNHECPTFQSVFK"
598 C 631 g 381 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /db_xref="PID:g2337937"
//translet.ion="WGGGRAAAGALLALAAGLLAAGSASEYDYVSFQSDIGAYQSGR
//translet.ion="WGGRAKRAYLPNILEHEYAASEVKQQASSWVPLLNKNCHIG
TQVFLCSLFAPVCLDRPIYPCRWLCEAVRDSCEPVMQFFGFYWPEMLKCDKFPEGDVC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria; Artiodactyla; Ruminantia; Pecora; Bovoidea; Bovinae; Bos.

1 (bases 1 to 4240)

Duplaa,C. and D'Amore,P.A.

Identification and cloning of a novel secreted form of mammalian firizzled: evidence to suggest a role in the control of growth and differentiation
                                                                                                                                                                                                  .,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      du Haut Leveque, Pessac
                                                                                                                                                                                                                                     CITCTACACCAAGCCACCTCAGTGCGTGGACATCCCCGGGGACCTGCGGCTGTGCCACAA 511
                                                                                                                                                                                                                                                                            351 CTTCTCCTACAAGCGCAGCAATTGCAAGCCCATCCCGGCCAACCTGCAGCTGTGCCACGG 410
                                                                                                                                                                                                                                                                                                                  571
                                                                                                                                                                                                                                                                                                                                                           470
                                                                                                                                                                                                                                                                                                                                                                                                 631
                                                                                                                                                                                                                                                                                                                                                                                                                                        530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           21-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BIU85945 4240 bp mRNA MAM 21-AUG-1998
Bos taurus frizzled-related protein FrzA mRNA, complete cds.
U85945
                                                                                                                                                                                                                                                                                                                  512 CGTGGGCTACAAGAAGATGGTGCTGCCCAACCTGGTGGAGCACGAGACCATGGCGGAGGT
                                                                                                                                                                                                                                                                                                                                        GAAGCAGCAGCAGCAGCTGGTGCCCCTGCTCAACAAGAACTGCCACGCCGGCACCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                      GGTCTTCCTCTGCTCGCTCTTCGCGCCGGTCTGCCT-G--GACGG-G-C----CCATCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   531 GAAGTTCCTGTGCTCGCTCTTCGCCCCCGTCTGCCTCGATGACCTAGACGAGACCATCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCCGTGTCGCTGGGCTCTGCGAGGCCGTGCGCGACTCGTGCGAGCCGGTCATGCAGTTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              591 GCCATGCCACTCGCTCTGCGTGCAGGTGAAGGACCGCTGCGCCCCCGGTCATGTCCGCCTT
                                                                                                                                                                                                <u>ئ</u>
                                                                                                                                                            Length 2094;
                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 106; DB 21; L. Pred. No. 4.01e-47; 0; Mismatches 89;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              198. .1124
/note="frizzled related protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Submitted (20-JAN-1997) INSERM U441, AV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="taxon:9913"
/cell_type="endothelial"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /organism="Bos taurus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /tissue_type="heart"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2 (bases 1 to 4240)
Duplaa, C. and D'Amore, P.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /product-"FrzA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
                                                                                                                                                          5.2%;
llarity 71.8%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Direct Submission
                                                                                                                                                                            Local Similarity
ses 249; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        taurus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          taurus
                                                                                                     Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 92337936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bos
                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                               BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                              Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                     452
                                                                                                                                                                                                                                                                                                                                                                                               572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOURCE
```

```
10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                            BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                             ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                   유
                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                         음
                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                  οŽ
                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                               /product="secreted frizzled-related protein"
"Ab_xxef="riD:92213819"
//translation="MGIGRSEGERGALGVLEALGAALLAVGSASEYDYVSFGSDIGP
YQSGRFYTKPPQCVDIPADLRLCHNVGYKKWVLPNLLEHETMAEVRQQASSWVPLLNK
                                                                                                                                                                                                   NCHAGTQVFLCSLFAPVCLDRPIYPCRWLCEAVRDSCEPVWQFFGFYWPEMLKCDKFP
EGDVCLAMTPRNATBASRPGGTVVCPPCDNELESALIEHLCASEFALBMKIKEVKKE
NGDKKIVPKKKKPLAGPIKKKDLKLVLYLKNGADOPCHQLDNLSHHFLIMGRKVKS
QYLLTAIHKWDKKNKEFKNFMKKMKNHECPTFQSVFK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="secreted frizzled related protein"
/broduct="secreted frizzled related protein"
/db_xref="PID:93033551"
/dranslation="MGIGRSEGGRRGALGVLALGAALLAVGSASEYDYVSFQSDIGP
YQSGRFYTKPPQCVDIPADLRLCHNVGYKKMVLPNLLEHETMAEVKQQASSWVPLLNK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Upregulation of human secreted Frizzled homologue in apoptosis and its down regulation in breast tumors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AF056087 4469 bp mRNA PRI 08-APR-1998
Homo sapiens secreted frizzled related protein mRNA, complete cds.
AF056087
                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cycle and apoptosis
                                                                                                                                                                                                                                                                                                                                                                                                                        449 CTTCTACACCAAGCCACCTCAGTGCGTGGACATCCCCGCGGACCTGCGGGCTGTGCCCACAA 508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GAAGCAGCCAGCCAGCTGGGTGCCCCTGCTCAACAAGAACTGCCACGCGGGACCCA 628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               471 GCTGGAGCAGGCCGGCGCTTGGATCCCGCTGGTCATGAAGCAGTGCCACCCGGACACCAA 530
                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;
Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 4469)
2hou,2. and Wang,J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Zhou Z. and Wang, J.
Direct Submission
Submitted (29-MAR-1998) Radiohemmet Research Laboratory, CCK, Karolinska Institute, Solnavagen, Stockholm S-171 76, Sweden Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        509 CGTGGGCTACAAGAAGATGGTGCTGCCCAACCTGCTGGAGCACGAGGACCATGGCGGAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /function="putative Wnt antagonist"
/note="FRP; frizzled homolog; cell cycle and apc
related; down regulated in breast tumoregenesis"
                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                           Score 103; DB 21; Length 2075;
Pred. No. 3.93e-45;
0; Mismatches 58; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                380 t
/dev_stage="embryonic"
/tissue_type="lung"
/cell_line="M426"
/cell_type="fibroblast"
303. 1244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1. .4469
/organism="Homo sapiens"
/db_xref="taxon:9606"
303. .1244
                                                                                                                                                                                                                                                                             626 g
                                                                                            /note="FRP"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
                                                                                                                                                                                                                                                                                                                             th 5.1%;
| Similarity 73.5%;
| 161; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (bases 1 to 4469)
                                                                                                                                                                                                                                                                           596 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens
                                                                                                                                                                                                                                                                             ๙
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             93033550
                                                                                                                                                                                                                                                                         473
                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                   Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         σ
                                                                                                                                                                                                                                                                        BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                 Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
SOURCE
                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
```

셤

셤

ò

g

ò

8

ò

```
NCHAGTQVFLCSLFAPVCLDRPIYPCRWLCEAVRDSCEPVMQFFGFYWPEMLKCDKFP
EGDVOIAMPRPRAFASKROGTTVCPPCDNELKSEAIIEHLCASEFALRMKIKEVKKE
NGDKKIVPKRKRPLKLGFIKKDLKKLVLYLKNGADCPCHQLDNLSHHFLIMGRKVKS
QYLLTAHKWDKKNEFKNFWKKRKHECPFFQSVFK"
1097 c 1120 g 1131 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2 (bases 1 to 2659)
Rattner, A., Hsieh, J.-C., Smallwood, P.M., Gilbert, D.J.,
Copeland, N.G., Jenkins, N.A. and Nathans, J.
Direct Submission
Submitted (05-FEB-1997) Molecular Biology and Genetics, HHMI/Johns
Hopkins University School of Medicine, 725 North Wolfe Street, PCTB
10cation/Qualifiers
1. 2659
/organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /db_xref-"PID:g1946341"
/translation-"MGVGRSARGRGGAASGVLLALAAALLAAGSASEYDYVSFQSDIG
SYQSGREYTREPQCVDIPVDIRLCHWGYKKWYLPNLLEHETWAEVKQQASSWVPLLIN
KNCHMGTQVPLCSLEAPVCDRPITPCRMLCEAVRDSCEPVWQFFGFYWPEMLKCDKF
PEGDVCIAMTPPNTEASKPGGTTVCPPCDNELKSBAIIEHLCASEPALRMKIKEVKK
ENGDKKIVPKKKRPLKLGPIKKKELKALVLFIKNGADCPCHQLDNLSHNFLIMGRKVK
SQYLLTAIHKMDKRNKEFKNFMKRNHECPTFQSVFK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MMUB8566 2659 bp mRNA ROD 22-APR-1997
Mus musculus secreted frizzled related protein sFRP-1 (Sfrp1) mRNA,
COMplete cds.
                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mus musculus
Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalla; Eutheria; Rodentia; Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                            449 CITCIACACCAAGCCACCICAGIGGACAICCCGGGGACCIGGGGCIGIGCCACAA 508
                                                                                                                                                                                                                                                                                                                                                                                                                                                      351 CTTCTCCTACAAGCGCAGCAATTGCAAGCCCATCCCGGCCAACCTGCAGCTGTGCCACGG 410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    569 GAAGCAGCAGCAGCAGCTGGTGCCCCTGCTCAACAAGAACTGCCACGCGGGACCCA 628
                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product="secreted frizzled related protein sFRP-1"
                                                                                                                                                                                                                                                                                                                                                                                                                         509 CGTGGGCTACAAGAAGATGGTGCTGCCCAACCTGCTGGAGCACGAGACCATGGCGGAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Murinae; Mus.

I (bases 1 to 2659)

Rattner, A., Hsieh, J.C., Smallwood, P.M., Gilbert, D.J.,
Copeland, N.G., Jenkins, N.A. and Nathans, J.

A family of secreted proteins contains homology to the
cysteine-rich ligand-binding domain of frizzled receptors
Proc. Natl. Acad. Sci. U.S.A. 94 (7), 2859-2863 (1997)
                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                       Length 4469;
                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                              Score 103; DB 21; L
Pred. No. 3.93e-45;
0; Mismatches 58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 531 GAAGTICCIGIGCICGCICTICGCCCCCGICIGGA 569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  629 GETCTTCCTCTCGCTCTTCGCGCCCGTCTGCCTGGA 667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Fgfrl"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /map="between Plat and 257. .1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /db_xref="taxon:10090"
/chromosome="8"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="Sfrp1"
257. .1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  257. .1201
/gene="Sfrp1"
                                                                                                                                                                                                 Query Match 5.1%;
Best Local Similarity 73.5%;
Matches 161; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g1946340
```

σ

```
7218 bp
                                                                                                                                                                                                                                                        4.78;
                                                                                                                              Unclassified.
                                                                                                                                                                                                                                                                    Best Local Similarity
                                                                                                                                                                                                                       1944 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 crescent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             92226371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    chicken.
                                                                                                      Unknown
                                                                                                                   Unknown
  751 C 751
                                                                                                                                                                                                                                                          Query Match
                                    12
                                                         DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                13
                                                                                                       SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                                       BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
JOURNAL
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                    AUTHORS
                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             303
                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
                                                                                           KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KEYWORDS
                                                                                                                                                                                      FEATURES
                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
LOCUS
                                                                                                                                                                                                                                  ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      q
                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1051 CACCCTGTTTCTGTCCCATGACCAGATAGGGCGCGTTGATGTCGTTCATCTCCTCACAGG 992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          931 CGTTCAGCTTGTAAATGGTCTTGCTCTTGGTCTCCAGGATGATTTTGGTATCTCGGTTGA 872
                                                                              406 CITCTACACCAAGCCCCCGCAGIGCGIGGACAICCCGGIGGACCIGAGGCIGIGCCACAA 465
                                                                                                    351 CTTCTCCTACAAGGGCAGCAATTGCAAGCCCATCCGGGCCAACCTGCAGGTGTGCCACGG 410
                                                                                                                           466 CGTGGGCTACAAGAAGATGGTGCTGCCCAACCTGCTGGAGCACGAGACCATGGCAGAGGT 525
                                                                                                                                       526 GAAGCAGCAGCCAGCAGCTGGGTGCCGCTGCTCAACAAGAACTGCCAATGGGCCACCCA 585
                                                                                                                                                                                       871 TGTAGGTTATCTCCTTCACTTTTATTTTCAGTGCAAAATCATTTTTACAAAGCGTTTCCA 812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             811 TIATGTCGTTGTCATCATCATTTTTTTGCAGGCTTCACATACCTTTGGAGCTTCCT 752
                                                          Gaps
                                                                                                                                                                                                                                                                                          23-DEC-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                         ö
                                   Length 2659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 7218
  4 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   368 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ouery Match 4.8%; Score 97; DB 17; Length 721 Best Local Similarity 1.4%; Pred. No. 3.60e-41; Matches 5; Conservative 224; Mismatches 132; Indels
                                  Score 101; DB 22; Length 26
Pred. No. 8.29e-44;
0; Mismatches 59; Indels
                                                                                                                                                                                                                                                                                                                                                                             Unitessities.

1 (Sases I to 7218)

Dorner, F., Scheiflinger, F. and Falkner, F. Gunter.

Recombinant fowlpox virus

Patent: US 5670367-A 14 23-5EP-1997;

Location/Qualifiers
                                                                                                                                                                                                                                                                                          PAT
                                                                                                                                                                                                                                 586 GGTCTTCCTCTGGTTCGCTCTTCGCGCCCGTCTGGA 624
  553 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1929 t
                                                                                                                                                                                                                                                                                                Sequence 14 from patent US 5670367.
166494
92724471
                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="unknown"
1491 c 1486 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                · (4)
  6
 719
                                                                                                                                                                                                                                                                                          7218 bp
                                  Query Match 5.0%;
Best Local Similarity 73.1%;
Matches 160; Conservative
  ပ
 738
                                                                                                                                                                                                                                                                                                                                                              Unknown.
Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1944 a
 645
                                                                                                                                                                                                                                                                                                                                                  Unknown.
                                                                                                                                                                                                                                                                                         I66494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1421 Y 1421
                                                                                                                                                                                                                                                                              11
                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                                                                                                                                                                                                                                                                   DEFINITION
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BASE COUNT
                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                      KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                                                              g
                                                                                                     ò
                                                                                                                           셤
                                                                                                                                                  ò
                                                                                                                                                                       硆
                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                   유
                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
```

```
Int. J. Dev. Biol. (1997) In press 2 (bases 1 to 2075)
Pfeffer, P.L., Izpisua-Belmonte, J.C. and De Robertis, E.M.
Direct Submisted (28-MAX-1997) IMP, Dr. Bohrgasse 7, Vienna 1030, Austria Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               63 GCGGGCTTGCAGCGCCTCGCCCGGGCTCCTCCGGTGTCCCGCTTCTCGCGCCCCCAGC 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        243 TCGCGCGCCCACGATGCTGCAGGGCCCTGGCTCGTGCTGCTGCTTCCTCGCCTCGCA 302
                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3 ATTCGGCCTTCATGGCCTAGCTCATTCTGCTCCCCGGGTCGGAGCCCCCGGAGCTGGG 62
23-DEC-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          30-JUN-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Callus gallus callus lukaryotes; Metazoa; Chordata; Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata; Puctebrata; Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.

1 (bases 1 to 2075)

Pfeffer, P.L., Izpisua-Belmonte, J.C. and De Robertis, E.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CIGCTGCCTGGGCTCGGGCTCTTCCTCTTTGGCCAGCCCGACTTCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                     Score 96; DB 17; Length 7218; Pred. No. 1.63e-40;
                                                                                                                                                                                                                                                                                                                          368 others
                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative 224; Mismatches 130; Indels
                                                                                                                                                             J (bases 1 to 7218)

Dorner, F., Scheiflinger, F. and Falkner, F. Gunter.

Recombinant fowlpox virus

Patent: US 5670367-A 14 23-SEP-1997;

Location/Qualifiers
PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AF006508 2075 bp mRNA VR.
Gallus gallus crescent mRNA, complete cds.
AF006508
                                                                                                                                                                                                                                                                                                                             1929 t
           Sequence 14 from patent US 5670367.
166494
92724471

    .2075
    /organism="Gallus gallus"

                                                                                                                                                                                                                                                                                               /organism="unknown"
1491 c 1486 a
```

```
/product."frizzled homolog"

/Lacxref-= PID: g1906598"

/translation="WAVAPLEGALLWQLLAAGGAALEIGREDPERGRGAAPCQAVEI
PMCRGIGYNLTRMPNLLGHTSOGEAAAELAEFAPLVQYGCHSHLRFFLCSLYAPWCTD
OVSTPIPACREWGCBARLCARIWEGPENFGWPDSLOARLFRNDPHALCMEAPENAT
AGPAEPHKGLGMLPARPRARPRODLGPGGGSGTCENPERFQYPEKSCAPRCGPG
VEVFWSRRDKDFALWWAAWWSALCFFSTAFTVLTFLLEPHREQYPERPITFLSMCYNV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The sequence of Homo sapiens clone Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2 (bases 1 to 106049)
Waterston, R.H.
                                                                                                                                                                                                                                                                        3.0%;
ilarity 59.8%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         93212942
HTG; HTGS_PHASE1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MO 63108, USA
                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 183; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens
                                                                                                                                                                                                                             ದ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                462 ACGACC 467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACGACC 706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                            COUNT
                                                                                                                                                                                                                                                                                                                                         162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMMENT
                                                                                                                                                                                                                          BASE CC
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                         엄
                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                   원
                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                            /codon_start=_1
/product="crescent"
/db_xref="ptp:g1226372"
/db_xref="ptp:g226372"
/translation="WRASATERASRRGAPWLPGLLLRLLLWGCAGGRASYLRRSSSC
/translation="WRASATERASRRGAPWLPGLLLRLLLWGCAGGRASYLRRSSSC
TAIPRSMALCYDIGYSEMRIPNLLEHETMPEVIQQSSSWLPLLARECHPDARIFLCSL
FAPICLORLIYPCRSLCEAVRRGCAPWAACYGYPWPEILMCNRFPADHELCIAAVSTD
ESSSSRRMPRASCKDCELLEASTARELIDNLCANDFTVKIRILRRNTTTYSDFDLDP
SRVEVLKPGPLLRTFIPCRLQQMLDIDATCAHNIMRGTHAGVFVISGEVRSDEVVVNK
AYAWQKKNRNLHQAVRRWKHHRCPEQAGRKV"

547 g 378 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="FZD3"
/note="similar to Drosophila frizzled; seven transmembrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 2184)
Wang, Y.K., Samos, C.H., Peoples, R., Perez-Jurado, L.A., Nusse, R. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Stanford
USA
                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        492
                                                                                                                                                                                                                                                                                                                                                        271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    493 ATCCCGCTGGTCATGAAGCAGTGCCACCCGGACACCAAGAAGTTCCTGTGCTCGTCGTCTTC 552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     331
                                                                                                                                                                                                                                                                                                                                      TGCACCGCCATCCCGCGCAGCATGGCCTGTGCTATGACATCGGTTACTCGGAGATGAGG 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 26-MAR-1997
                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                    212 ATCCCCAACCTGCTGGAGCACGAGACCATGCCGGAGGTGATCCAGCAGTCCTCCAGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                     272 CIGCCCTTGCTGGCCAGGGAGTGCCATCCCGACGCCAGGATTTTCCTCTCTCCTCTTC
                                               of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Submitted (12-DEC-1996) Howard Hughes Medical Institute, Medical Center, Beckman Center B201, Stanford, CA 94305,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2 (bases 1 to 2184)
Wang, Y.-K., Peoples, R., Perez-Jurado, L.A. and Francke, U.
Direct Submission
                                              /note="member of cysteine-rich frizzled family
                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                          Length 2075;
                                                                                                                                                                                                                                                                                                        0; Mismatches 57; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HSU82169 2184 bp mRNA PRI
Human frizzled homolog (FZD3) mRNA, complete cds
U82169
91906597
                                                                                                                                                                                                                                                                        Score 83; DB 16;
Pred. No. 4.64e-32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Homo sapiens"
/db_xref="taxon:9606"
/db_xref="taxon:9031"
/clone="5.2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Medical Center, Beckman Center Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /chromosome="7"
/map="7q11.23"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="FZD3"
26. .1801
                                                                                                                                                                                                                                                                       Query Match 4.1%;
Best Local Similarity 71.1%;
Matches 140; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 332 GCGCCCATCTGCCTGGA 348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .946
                                                              proteins"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .1801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                receptor"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      I. .2184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LOCUS
DEFINITION
                                                                                                                                                                                                                        BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                      152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
```

```
YSLAFLIRAVAGAQSVACDQEAGALYVĪQEGLENTGCTLVFILLYYFGMĀSSLWWVVL
THWFLAAGKKWGHEALEAHGSYFHWAMGLPALKTIVILITEKVAQDELTGLCVAAS
TDAAALTGFVLVPLGSSFLLYGFVALFHIRKIMKTGGTNFRKLEVKVKIGV
FSILYTVPATCVIVCXYYERLNMDFWRLRATEQPCAAAAGPGGRRDCSLPGGSVPTVA
VFMIKIFWSLVVGTTSGVWWSKTFOTWQSLCYRKIAAGRARAKACRAPGSYGRGTH
CHXAPTVVLHMTKTDPSLENPTHL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Louis,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  * This sequence is unfinished. It consists of 1 contigs for which the order is not known; their order in this record is * arbitrary. In some cases, the exact lengths of the gaps * between the contigs are also unknown; these gaps are presented
                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              461 TGAAGGAGGTGCTGGAGCAGGCGGCGCTTGGATCCCGCTGGTGCAGGAGCAGTGCCACC 520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGTGCCGCGCGCATCGCTACAACCTGACCGCGATGCCCAACCTGCTGGGCCACACGTCGC 221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               401 TGTGCCACGGCATCGAATACCAGAACATGCGGCTGCCCAACCTGCTGGGCCACGAGACCA 460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AC005049 106049 bp DNA HTG 12-JUN-1998
Homo sapiens clone RG023115; HTGS phase 1, 1 unordered pieces.
AC005049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;
Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 106049)
Waterston, R.H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Submitted (12-JUN-1998) Genome Sequencing Center, Washington University School of Medicine, 4444 Forest Park Parkway, St.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 222 AGGGCGAGGCGGCTGCCGAGCTAGCGGAGTTCGCGCCGCTGGTGCAGTACGGCTGCCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         581 AGACCATCCAGCCATGCCACTCGCTCTGCGTGCAGGTGAAGGACCGCTGCGCCCCGGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGGAGCAGTTCAACTTCGGCTGGCCGGACTCGCTCGACTGCGCCCGGCTGCCCACGCGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         282 GCCACCTGCGCTTCTTCCTGTGCTCGCTCTACGCGCCCATGTGCACCGACCAGGTCTCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          342 CGCCCATICCCGCCIGCCGGCCCATGIGCGAGCAGCGCGCGCCTGCGCGCGCGCCCATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   *** WARNING: Phase 1 High Throughput Genome Sequence ***
                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                               Length 2184;
                                                                                                                                                                                                                                                                                                           Score 60; DB 21; Length 218
Pred. No. 1.15e-17;
0; Mismatches 123; Indels
```

```
1. .136389
                                                                               ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       52969 GGCACA 52974
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             U43318
91151251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HSU43318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           406 GGCACA 401
                                                                             33882
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
JOURNAL
                                                                             BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
                                                                                                 ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     q
                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                           d
                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                            გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ე
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           * This sequence is unfinished. It consists of I contigs for

* which the order is not known; their order in this record is

* arbitrary. In some cases, the exact lengths of the gaps

* between the contigs are also unknown; these gaps are presented

* as runs of N as a convenience only. When sequencing is complete,

* the sequence data presented in this record will be replaced

* by a single finished sequence with the same accession number.

Location/Qualifiers
* as runs of N as a convenience only. When sequencing is complete, the sequence data presented in this record will be replaced *by a single finished sequence with the same accession number.
                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2506
                                                                                                                                                                                                                                                                                                          2267 GGTCGTTGCGCGTGGGCAGCCGGGCGCAGTCGAGCGAGTCCGGCCAAGCTGAACT 2326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2327 GCTCCATGATGGGCGCGCAGCGCAGGCGCGCCTGCTCGCACATGGGCCGGCAGGGGGAA 2386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGCCCTGCGACGTGTGGCCCAGCAGGTTGGGCCATGCGGGTCAGGTTGTAGCCGATGCCGC 2566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    467
                                                                                                                                                                                                                                                                                                                                                706 GGTCGTTGTCCTGGGGGAAACGGTCGCACTCAAGCATGTCGGGCCAGGGGAAGCCGAAGG 647
                                                                                                                                                                                                                                                                                                                                                                                                                            646 CGGACATGACCGGGGCGCACGGTCCTTCACCTGCACGCAGGCGAGTGGCATGGCTGGA 587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             466 CCTICATGGICICGTGGCCCAGCAGGTIGGGCAGCCGCAIGTICTGGTATICGAIGCCGT 407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACO05074 136389 bp DNA HTG 12-JUN-1998
Homo saplens clone RG208H19; HTGS phase 1, 1 unordered pieces.
AC005074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria; Primates; Catarrhin; Hominidae; Homo.
1 (bases 1 to 136389)
Waterston, R. H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Direct Submission
Submitted (12-JUN-1998) Genome Sequencing Center, Washington
University School of Medicine, 4444 Forest Park Parkway, St.
MO 63108, USA
                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  526 TGTCCGGGTGGCACTGCTTCATGACCAGGGGATCCAAGCGCCGGGCTGCTCCAGCACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2447 GGIGGCIGIGGCAGCCGTACTGCACCAGCGGCGCGAACTCCGCTAGCTCGGCAGCCGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   *** WARNING: Phase 1 High Throughput Genome Sequence ***
                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                               Length 106049;
                                                                                                                                                                                                                               Score 60; DB 13; Length 106
Pred. No. 1.15e-17;
0; Mismatches 123; Indels
                                                                                             1. .106049
/organism="Homo sapiens"
/db_xref="taxon:9606"
/clone="R6023115"
26683 a 26652 c 27043 g 25671 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The sequence of Homo sapiens clone
Unpublished
2 (bases 1 to 136389)
                                                                         Location/Qualifiers
                                                                                                                                                                                                                               Query Match 3.0%;
Best Local Similarity 59.8%;
Matches 183; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HTG; HTGS_PHASEL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2567 GGCACA 2572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       406 GGCACA 401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g3212917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
ACCESSION
NID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 16
                                                                                                 source
                                                                                                                                                                         COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
```

g S

S

Cp g S g

S g გ g

```
ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Human putative transmembrane receptor (frizzled 5) mRNA, complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ဍ
                                                                                                                                                                                                                                                                     52669 GGTCGTTGCGCGTGGGCAGCCGGGCGCAGTCGAGTCCGGCCAGCCGAAGTTGAACT 52728
                                                                                                                                                                                                                                                                                                                                                                              52729 GCTCCATGATGGGCGCGCAGCGCAGGCGCCTGCTCGCACATGGGCCGGCAGGCGGGAA 52788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     52849 GGTGGCTGTGGCAGCCGTACTGCACCAGCGGCGAACTCCGCTAGCTCGGCAGCCGCCT 52908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        52909 CGCCCTGCGACGTGTGGCCCAGCAGGTTGGGCATGCGGGGTCAGGTTGTAGCCGATGCCGC 52968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata; Vertebrata; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1. (bases 1 to 2334)
Mang, Y., Macke, J.P., Abella, B.S., Andreasson, K., Worley, P., (51bert, D.J., Copeland, M.G., Jenkins, N.A. and Nathans, J. A large family of putative transmembrane receptors homologous the product of the prosophila tissue polarity gene frizzled J. Biol. Chem: 271-(8), 4468-4476 (1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    526 TGTCCGGGTGGCACTGCTTCATGACCAGCGGGATCCAAGCGCCGGCCTGCTCCAGCACCT 467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       706 GGTCGTTGTCCTGGGGGAAACGGTCGCACTCAAGCATGTCGGGCCAGGGGAAGCCGAAGG 647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Submitted (14-DEC-1995) Jeremy Nathans, Molecular Biology and Genetics, Johns Hokins Medical School, 725 N. Wolfe Street, Baltimore, MD 21205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              24-FEB-1996
                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       646 CGGACATGACCGGGGCGCAGCGTCCTTCACCTGCACGCAGAGCGAGTGGCTGGATGGCTGGA
                                                                                                                                                                                                                ö
                                                                                                                                                      Score 60; DB 13; Length 136389;
Pred. No. 1.15e-17;
                                                                                                                                                                                                                0; Mismatches 123; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="frizzled 5"
321. .2078
/gene="frizzled 5"
/note="putative transmembrane receptor"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2 (bases 1 to 2334)
Abella,B., Wang,Y., Macke,J.P. and Nathans,J.
                                                                             33810 g 36123
/organism="Homo sapiens"
/db_xref="taxon:9606"
/clone="RG208H19"
1 32574 c 33810 g 36123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /tissue_type="retina"
321. .2078
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /map="2q33-34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2334 bp
                                                                                                                                                           Query Match 3.0%;
Best Local Similarity 59.8%;
Matches 183; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens
```

```
Query Match
                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
                                                                                                                                                                                                                                    BASE COUNT
                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                    399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     616
                                                                                                                                                                                                                                                                                                                                                                                                                                                     459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9/9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                  ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
                                                                                                                                                                                                                                                                                                                                                     엄
                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                               AVPCYOPSFSADERTFATFWIGLMSVLCFISTSTTVATFLIDMDTFRYPERPLIFISA
CZCUSGLELVRLVVGHSVAGRERHINHITHETTPALCTIVFLLVFPFERPERSTWW
ILSLYWFLAAAMKWENSAAGREHLAAMILPSVRSITALALSSVDGDPVAGICY
GNONLNSLRRFVLGPLVLYLLVGTLFLLAGFVSLFRIRSVIKOGGTKTDKLEKLMIRI
GLTLLYTVPASIVYAGTVYRACIVERSWEAALTCACROPHDTGOPRAKPEYWLLMIKYF
MCLVVGITSGVWIMSGRTVESWREAALTCACROPHDTGOPRAKPEYWLLMIKYF
GLEVVGTISGVWIMSGRTVESWREATSRCCCRPRRGHKSGGAMAAGDYPEASAALTGR
TGPPGPAATYHKQVSLSHV
                                               GYNLTHMPNOFNHDTQDEAGLEVHQFWPLVETÖCSPDLRFFLCTMYTPTCLPDFHKPL
PPCRSVCERAKAGCSPLMRQYGFAWPERMSCDRLPVLGRDAEVLCMDYNRSEATTAPP
RPFPAKPTLPGPPGAPASGGECPAGGPFVCKCREPFVPILKESHPLYNKVRTGQVPNC
/product="transmembrane receptor"
/db_xref="PID:g1151252"
/translation="WARPDPSAPPSLLLLLLAQLVGRAAAASKAPVCQEITVPMCRGI
                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  212. .1990
/gene="Fz-1"
/note="putative Wnt receptor; similar to rat frizzled-1
protein"
                                                                                                                                                                                                                                                                                                                                                    558
                                                                                                                                                                                                                                                                                                                                                                                                                                    520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              619 AGCCGCTGCCCCTCCGCTCGGTGTGCGAGCCGGAAGGCCCGGCTGCTCGCCGGTGA 678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STGAAGGACCGCTGCGCCCCGGTCA 640
                                                                                                                                                                                                                                                                                                                                  GACGCACATGCCCAACCAGTTCAACCACGACGC 498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Cold Spring Harb. Symp. Quant. Biol. (1997) In press 2 (bases 1 to 2328)
Kengaku,W. and Tabin,C.
Submitted (29-OCT-1997) Genetics, Harvard Medical School, 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AF031830 2328 bp mRNA VRT 02-DEC-1997 Gallus gallus 7-transmembrane protein frizzled-1 (Fz-1) mRNA, nuclear gene encoding mitochondrial protein, complete cds. q2655273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryotae, Metazoa; Chordata; Vertebrata; Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus. 1 (bases I to 2328) Kengaku, M., Twombly V. and Tabin, C. Expression of Wnt and Frizzled genes during chick limb bud
                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GACG
                                                                                                                                                                                                                                                                                                                                                                                                                                SAGCAGGCCGGTGGATCCCGCTGGTCATGAAGCAGTGCCACC
                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                499 AGGACGAGGCGGGGCTGGAGGTGGAGTTGTGGCCGCTGGTGGAGATGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   679 rececedadipesecrrececresecesacedareacersesacesecres 730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     641 TGTCCGCCTTCGCCTTCGCCTGCCTGAGTGCGTTGAGTGCGTTTCCC 692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   csaccriccedificirccrarscalcrargracaceccarcrastrated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGATGACCI
                                                                                                                                                                                                                                                                 DB 20; Length 2334;
                                                                                                                                                                                                                                                                 e 58; DB 20; Length 233
. No. 1.84e-16;
Mismatches 117; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ເວ່ວອະເວເອີ່ນວອ່ວອ່ວ
                                                                                                                                                                                                                   439 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Gallus gallus"
/db_xref="taxon:9031"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /tissue_type="limb bud"
1. .2328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Longwood Ave., Boston, MA 02115
Location/Qualifiers
                                                                                                                                                                                                                     б
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 521 cggacacdaadaadriccigigcicgcici
                                                                                                                                                                                                                                                                     Score
                                                                                                                                                                                                                                                                                   Pred.
                                                                                                                                                                                                                  736
                                                                                                                                                                                                                                                                                                                                  TGTGCCGCGCATCGGCTACAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  581 AGACCATCCAGCCATGCCACTCG
                                                                                                                                                                                                                                                                 2.9%;
larity 59.9%;
Conservative
                                                                                                                                                                                                                  803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gallus gallus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   development
                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                    TGAAGGAGGTGC
                                                                                                                                                                                                                     Ø
                                                                                                                                                                                                                   356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                chicken.
                                                                                                                                                                                                                                                                                                  175;
                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                   Best Local
Matches 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                  BASE COUNT
                                                                                                                                                                                                                                                                                                                                  439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                               ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                οž
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÿ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
```

```
PAGGQPAAQPAALSERGISIPDHGYCQPISIPLCTDIAYNQTIMPNILGGHTNQEDAGL
EVHQFYPLVKYOCSAELKFELCSMYAPVCTVLEQALPPCRSLCERARGGCEALMNKFG
FOWPDTILRCKFPVHGAGELVGQNAERGFTPPALRPESWTSNPHRGGGAGGSGPGE
ARGRESCPRALKYPSYLNYRELGEKDCGAPCEPGRLKGLMYFGPEELRFSRFWIGIUS
VLCCASTLFTVLTYLVDMKRFSYPERPIIFLSGCYTAVAVAYIAGFLLEERVVCNERF
ABDGSRTWAQCTKREGCTILFMALYFFGMASSIWWYLLSLTWFLAAGAKWGHEAIEAN
SQYFHLAAWAYQTKREGCTILALGQVDGDVLGSVCFYGINNVDALRGFVLAPLEVYLFI
GTSFLLAGFVSLPFRTIMKHOGTKFEKLEKLMYRIGIFSVLTYVPATIYIACYFYEG
ARREQWERSWYTQSGKSYALCOPNNHSSHHPPMSPDFTVFMIKYLMTLIVGITSGFWI
/product="7-transmembrane protein frizzled-1"
/db_xref="PID:92655274"
/translation="MAERRCPAGGGSCEVGGGRRAGGDRCPRRPPALPLLLLLWAAAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Eutheria; Rodentia; Sciurognathi; Myomorpha; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ဌ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mus musculus putative transmembrane receptor (frizzled 8) gene, complete cds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 (bases I to 2421)
Wang, Y., Macke, J.P., Abella, B.S., Andreasson, K., Worley, P.,
Gilbert, D.J., Copeland, N.G., Jenkins, N.A. and Nathans, J.
A large family of putative transmembrane receptors homologous
the product of the Drosophila tissue polarity gene frizzled
J. Biol. Chem. 271 (8), 4468-4476 (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Abella, B., Wang, Y., Macke, J.P. and Nathans, J.
Direct Submission
Submitted (14-DEC-1995) Jeremy Nathans, Molecular Biology and Genetics, Johns Hopkins Medical School, 725 N. Wolfe Street,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  499 CCAGGAGGCGGGGCTGGAGGTGCACCAGTTCTACCCGCTGGTGAAGGTGCAGTGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      439 GCTGTGCACAGACATCGCTTACAACCAGACCATGCCCCAACCTGCTGGGCCCACCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCTGTGCCACGCCATCGAATACCAGAACATGCGGCTGCCCAACCTGCTGGGCCCACGAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGCCGAACTGAAGTTCTTCCTGTGCTCCATGTACGCCCCGGTGTGCACCG-TG--CTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCCGGACACCAAGAAGTTCCTGTGCTCGCTCTTCGCCCCCGTCTGCATGACCTAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCAGGCCCTGCCGCCTCTCTTTGCGAGCGCGCCCGCCAGGGCTGCGAGGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <u>ښ</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CATGAACAAGTTCGGCTTCCAGTGGCCCGACACGCTGCGCTGCGAGAAGTTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 2328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 57; DB 16; Length 232
Pred. No. 7.29e-16;
0; Mismatches 108; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /map="between Tpl2 and Cdh2"
                                                                                                                                                                                                                                                                                                                                                                                463 t
                                                                                                                                                                                                                                                                                                                                                     WSGKTLNSWRKFYTRLTNSKQGETTV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism-"Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /db_xref="taxon:10090"
/chromosome="18"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Baltimore, MD 21205
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                2.8%;
Similarity 62.2%;
183; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (bases 1 to 2421)
                                                                                                                                                                                                                                                                                                                                                                             732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               house mouse.
                                                                                                                                                                                                                                                                                                                                                                                   ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g1151259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              96224032
                                                                                                                                                                                                                                                                                                                                                                                   394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         U4332
```

```
/ FLOAT STATES AND STA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Harvard Medical School, 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa; Chordata; Vertebrata; Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae; Xenopodinae; Xenopus. I Chasea; Lo 1181)
Salic,A.N., Kroll,K.L., Evans,L.M. and Kirschner,M.W.
Sizzled: a secreted Xwnt8 antagonist expressed in the ventral marginal zone of Xenopus embryos
Bevelopment 124 (23), 4739-4748 (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           351 GCTGTGCACGGACATGGCGTACAACCAGACCATGCACAACCTGCTGGGCCACACGAA 410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   411 TCAGGAGGACGCCGGTCTGGAGGTGCACCAGTTCTACCCTCTGGTGAAGGTGCAGTGCTC 470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 459 CATGAAGGAGGTGCTGGAGCAGGCGGCGCTTGGATCCCGCTGGTCATGAAGCAGTGCCA 518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      471 CGCCGAGCTCAAGTTCTTCCTGTGCTCCATGTACGCGCCTGTGTGCACCG-T-AC-TGGA 527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               528 GCAGGCGCTACCGCCCTGCCGCTCCCTGTGCGAGCGCGCACGCCAGGGCTGCGAGGCGCT 587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     28-APR-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AF059570 1181 bp mRNA VRT 28-APR-19
Xenopus laevis secreted Xwnt8 inhibitor sizzled (szl) mRNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .,
κ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C (bases 1 to 1181)
Salic, A.N., Kroll, K.L., Evans, L.M. and Kirschner, M.W.
Direct Submission
Submitted (14-APR-1998) Cell Biology, Harvard Medical
Longwood Ave, Boston, MA 02115, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 1881;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 51; DB 22; Length 188
Pred. No. 2.49e-12;
0; Mismatches 111; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             367 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Xenopus laevis"
/db_xref="taxon:8355"
/dev_stage="neurula"
1. .1181
                                                                                                 /product-"Frizzled-1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      575 g
                                                                /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 2.5%;
Best Local Similarity 61.2%;
Matches 180; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               African clawed frog.
Xenopus laevis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             602 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complete cds. AF059570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           93089550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           合
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                           /product-"transmembrane receptor"
/db_xref-"translation="memgratery receptor"
/translation="memgratery relization/receptor"
grany Tympkop Full Type receptor receptor receptor relization receptor recept
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SIAVLALSSVDGDPVAGICYVGNQSLDNLRGFVLAPLVIYLFIGTMFLLAGFVSLFRI
SYLKQOGGPRTHKLEKLMIKLGFTVLYTVFAVAVVACLFFYEGNHRRPWEATHROP
CLRDLQPDQARRPDPAYFMIKYFMCLVVGITGSVAWVAGGKTLESWRALCTRCCMASKG
AAVGAGAGGSGPGGGGGGGGGGGGGGSLYSDVSTCLTWRSGTASSYSTPKQMPA
                                                                                                                                                                                                                                                                                                                                                                                                         GGGAAPCEPGCQCRAPWSVSSERHPLYNRVKTGQIANCALPCHNPFFSQDERAFTVF
WIGLMSVLFCFVSTFATVSTFLLDMERKFYERET FLSACLFVSGVGYLVKLVGHEK
WACSGGAPGAGGGAGAARGAAGRGASSPGIESTELGAVEGHYXETTGPA
LCTVVFLLVYFFGMASSIWWVILSLTWFLAAGMKWGNEALAGYSGYFHLAAWLPSSVR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria; Eukaryota; Sciurognathi; Muridae; Musinae; Mus. 1 (bases 1 to 1881)
Xu, L., Muragaki, Y., Olsen, B. and Li, Y.
Direct Submission
Submitted (18-MRR-1998) Cell Biology, Harvard Medical School, 220
Longwood Ave., Boston, MA 02115, USA
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TACAAGTACACTTACATGCCCAACCAGTTCAACCACG 365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      rescenegissasaracas 425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATGIACACGCCCATCTGCCTGGAGGACT 485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGTCGCTCTGTGTGTGTACGGCCGAAGGCCGGCTGCGCGCG 545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SGCCCTTGGATCCCGCTGGTCATGAAGCAGT 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               395 recascrereccacecarceaanaccasaacarecesecreccaaccrecresereses 454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              575 TAGAÇGAGACCATÇCAGCCATGCÇACTCGÇTÇTGCGTGCAGGTGAAGGACÇGCTGCGCCC 634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           08-APR-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="similar to Drosophila polarity gene"/gene="frizzled-1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 2421;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 56; DB 22; Length 242
Pred. No. 2.87e-15;
0; Mismatcheş 121; Indels
                     /gene-"frizzled 8"
188. _2245
^nce-"frizzled 8"
/note-"putative transmembrane receptor"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ... v.4v23 1881 bp mRNA ROD
Mus musculus frizzled-1 mRNA, complete cds.
AF054623
g3025755
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /dev_stage="10.5 day embryo"
1. .1881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ų
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CACCAGTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="Mus musculus"/strain="C57BL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /db_xref-"taxon:10090"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCTCCCCGGGACCTCAAGITCTTTCTGTGTAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  p
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGACCATGAAGGAGGTGCTGGAGCAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  366 ACACGCAAGATGAGGCGGGGGGTAGAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               779
                                                                                                                                                                  /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2.8%;
illarity 59.4%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGCCGTTGTGCAAAGGCATCGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               772 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1. .1881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ouery Match
Best Local Similarity '
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACAAGAAGCCTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ponse monse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LOCUS
```

g

Q

δ

8

음

ò

g

ò g ò

```
SIWWVILSLIWFLAAGMKWGNEAIAGYSQYFHLAAWLVPSIKSIAVLALSSVDGDPVA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Drosophila melanogaster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    872. .7707
/gene="CP1"
872. .1000
/gene="CP1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10772 bp
                                                                                                                                     2.4%;
Local Similarity 59.1%;
les 159; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /number=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        fruit fly.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AF012089
                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                    BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                          103
                                                                                                                                                                                                                                                                           163
                                                                                                                                                                                                                                                                                                                                             223
                                                                                                                                                                                                                                                                                                                                                                              520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
TITLE
                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                              ŏλ
                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                  /translation="MSGVFLLLCASMLACTAAFDIGLSTKCVTIPTEMAMCNDVGYSE
MRLPNLMGHTNMAEVVPKSAEWQNILQTGCHEYRAFTLCSTEAPVCLDTFIOPCRSMC
WARDSCAPVLACHGHSWPBSLDCDRFPAGEDMCLDTLSKEYQYSYKELPKPSCQGCP
LIEBFFSHKTVLEAFCDNNFAVKVKLAKKGASGLYEFETEGEYBEFKGGLLLEFFFYTTT
TMIEQWLLINENCAQKLIRTRPTVYVIAGEIHHGKVKVNRIFHWQKKDSQLTLATRRW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    YMPNOFNHDTODEAGMEVHOFWPLVVIHCSPDLKFFLCSMYTFICLEDYKKPLPPCRS
VCERARAGCAPLMRQYGFAWPDRMRCDRLPEQGNPDTLCMDYNNTEQTTAAPSHPEP
PKPPARSVPKGRTRVEPPRSRSRATGCESGCQCRAPMVQVSNERHPLYNRVRTGQIPN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="frizzled 8 protein"
/db_xref="PID:93323438"
/translation="MESLSLLLLVSWLQGSQCAAAKELSCQEITVPLCKDIGYNYT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CAMPCHNPFFSPEERTFTEFWIGLMSVLCFASTFATVSTFLIDMERFKYPERPIIFLS ACYLLVSTGYLIRLIAGHEKVACSRGELDLEHIIHYETTGPALCTLVFLLIYFFGMAS
                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Submitted (04-AUG-1997) Microbiology and Molecular Genetics, Harvard Medical School and Beth Israel Deaconess Medical Center, 330 Brookline Ave., Boston, MA 02215, USA Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   545
                                                                                                                                                                                                                                                                                                                                                                                                                426 CATGCGGCTGCCCAACCTGGGCCACGAGACCATGAAGGAGGTGCTGGAGCAGGCGGG 485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 270
                                                                                                                                                                                                                                                                                                                                                                                            151 GATGCGGCTGCCAAACCTGATGGGACACACTAACATGGCAGAAGTCGTGCCCAAGTCAGC 210
                                                                                                                                                                                                                                                                                                                             CACCAAGTGCGTCACCATTCCCACAGAGATGGCCATGTGCAATGACGTCGGCTACTCGGA 150
                                                                                                                                                                                                                                                                                                                                                             366 CAGCAATTGCAAGCCCATCCCGGCCAACCTGCAGCTGTGCCACGGCATCGAATACCAGAA 425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Batrachia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota, Metazoa, Chordata, Vertebrata, Amphibia, Batrachia
Anura, Mesobatrachia, Pipoidea, Pipidae, Xenopodinae, Xenopus
                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complete cds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   486 CGCTTGGATCCCGCTGGTCATGAAGCAGCCACCCGGACACCACCAAGAAGTTCCTGTGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                               211 AGAGTGGCAGAACCTCCTACAAACCGGCTGCCACCCTATGCCAGGACCTTCCTGTGCTC
                                                                                                                                                                                                                                                                                           ;
0
                                                                                                                                                                                                                                                        Length 1181;
                                                                    Xwnt8 inhibitor sizzled"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 (bases 1 to 1851)
1 (Loh.K., Jacobb.J. and Sokol,S.Y.
A role (for Xenopus Frizzled 8 in dorsal development Mech. Dev. 74, 145-157 (1998)
2 ( bases 1 to 1851)
11ch.K., Jacobb,J. and Sokol,S.Y.
                                                                                                                                                                                                                                                                                           0; Mismatches 78; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AFUI7177 1851 bp mRNA VRT
Xenopus laevis frizzled 8 protein (Xf28) mRNA,
AF017177
                                                                                                                                                                                                                                                          DB 16; I

    1851
    /organism="Xenopus laevis"
/db_xref="taxon:8355"
    1851

                                                                                                                                                                                                        315
                                                                  /product="secreted Xwnt
/db_xref="PID:93089551"
                                                                                                                                                                                                                                                          Score 48;
Pred. No.
                                                                                                                                                                                                          р
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  271 CCTGTTCGCCCCAGTCTGCCTGGA 294
                                                                                                                                                                                                        253
                                                      /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      546 GCTCTTCGCCCCGTCTGCTCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="Xfz8"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="Xfz8"
/gene="szl"
20. .865
                                   /gene="szl"
                                                                                                                                                                                                                                                        Query Match 2.4%;
Best Local Similarity 61.8%;
Matches 126; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        African clawed frog.
                                                                                                                                                                                                        256 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .1746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Xenopus laevis
                                                                                                                                                                                         RHHKC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      93323437
                                                                                                                                                                                                        357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                     BASE COUNT
                                                                                                                                                                                                                                                                                                                             91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
                                                                                                                                                                                                                       ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOURCE
                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                              QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
```

```
GICFVGNONLDNLRGFVLAPLVIYLFIGSMFLLAGFVSLFRIRSVIKQGGTKTDKLEK
LMIRIGIFSYLXTVBATIVVACFFYEQHNRGGWEVAHNCNSCQPEMAQPHRPDYAVFM
LKYFMCLVVGTISGVWIWSGKTLESWRAFCTRCCWGSKATGGSMYSDVSTGLTWRSGT
GSSYSCCPKQMPLSQV
1 C 547 c 502 g 428 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Drosophila melanogaster cysteine proteinase-1 (CPI) gene, complete cds, and phenylalanyl tRNA synthetase gene, partial cds. 47012089 92305220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Drosophila melanogaster: hybrid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Unpublished
3 (bases 1 to 10772)
3 (bases 1 to 10772)
birset Submission (C.R. and Engels, W.R.
Direct Submission (30-JUN-1997) School of Biological Sciences, University of Sydney, Biology Al2, Sydney University, NSW 2006, Australia Location (Qualifiers
                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                            400 CTGTGCCACGGCATCGAATACCAGAACATGCGGCTGCCCAACCTGCTGGGCCACGAGACC 459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                580 GAGACCATCCAGCCACTCGCTCTGCGTGAGGAGGACGACGCTCGCGCCCCGGTC 639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1. .10772
/organism="Drosophila melanogaster"
/db_xref="taxon:7227"
/gene="CP1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (bases 1 to 10772) Gray, Y.H.M., Sved, J.A., Preston, C.R. and Engels, W.R. Structure of the cysteine proteinase (CP1) gene of Drosophila melanogaster and associated mutational effects
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    05-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryotae; mitochondrial eukaryotes; Metazoa; Arthropoda;
Trachbata; Hexapoda; Insecta; Pterygota; Diptera; Brachycera;
Muscomorpha; Ephydroidea; Drosophilidae; Drosophila.
1 (bases 4546 to 4553)
                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    460 ATGAAGGAGGTGCTGGAGGCCGGCGCTTGGATCCCGCTGGTGAAGCAGTGCACAC
                                                                                                                                                                                                                                                                                                                       CTGTGCAAAGACATCGGCTACAACTACACGTACATGCCCAACCAGTTCAACCACGACACG
                                                                                                                                                                                                                                                                                                                                                                                                                                   CAGGACGAGGCCGGGATGGAGGTGCATCAGTTCTGGCCGCTGGTCGTTATTCACTGCTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCGGACCTCAAGTTCTTCCTGTGCAGCATGTACACCCCCATCTGCCTGGAGGACTACAAG
                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                       Length 1851;
                                                                                                                                                                                                    Score 49; DB 16; Length 185
Pred. No. 3.55e-11;
0; Mismatches 110; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    INV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /product="cysteine protease"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gray, Y.H., Tanaka, M.M. and Sved, J.A. P-element-induced recombination in I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  element insertion
Genetics 144 (4), 1601-1610 (1996)
97132596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               371
                                                                                                                                                                                                       Score 49;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATGTCCGCCTTCGGCTTCCCCTGGCCCGA 668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               343 ATGCGTCAGTACGCCTTCGCTTGGCCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNA
```

```
HFRKSGVLVSLSEQNLVDCSTKYGNNGCNGGLMDNAFRYIKDNGGIDTEKSYPYEAID
DSCHFNKGTVGATDRGFTDIPQGDEKKMAEAVATVGPVSVAIDASHESFQFYSEGVYN
EPQCDAQNLDHGVLVVGFGTDESGEDYWLVKNSWGTTWGDKGFIKMLRNKENQCGIAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="phenylalanyl tRNA synthetase"
/db_xref="PID:92305222"
/translation="MLLTLRVQGARHWLKSTRCLASSAAPAKSPSSPPQLEVSGSTYA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EERFRLKIFNENKHKIAKHNQRFAEGKVSFKLAVNKYADLLHHEFRQLMNGFNYTLHK
QLRAADESFKGVTFISPAHVTLPKSVDWRTKGAVTAVKDQGHCGSCWAFSSTGALEGQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="cysteine proteinase-1"
/db_xref="PID:92305221"
/translation="MRTAVLLPLAALLAVAQAVSFADVVMEEWHTFKLEHRKNYQDET
                                    Drosophila melanogaster

Eukaryotae; mitochondrial eukaryotes; Metazoa; Arthropoda;

Tracheata; Hexapoda; Insecta; Pterygota; Diptera; Brachycera;

Muscomorpha; Ephydroidea; Drosophilidae; Drosophila.

1 (bases 4546 to 4553)

Gray, Y. H., Tanaka, M. M. and Sved, J. A.

P-element-induced recombination in Drosophila melanogaster: hybrid
                                                                                                                                                                                                                                                                                                                                                                            3 (bases 1 to 10772)
Gray, Y.H.M., Sved, J.A., Preston, C.R. and Engels, W.R.
Direct Submission
Submitted (30-JUN-1997) School of Biological Sciences, University
of Sydney, Biology Al2, Sydney University, NSW 2006, Australia
Location/Qualifiers
                                                                                                                                                                                                                                                                                       Gray, Y.H.M., Sved, J.A., Preston, C.R. and Engels, W.R. Structure of the cysteine proteinase (CP1) gene of Drosophila melanogaster and associated mutational effects
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /organism="Drosophila melanogaster"
/db_xref="taxon:7227"
join(872, .1000,2310, .2426,6476, .6690,6751, .7707)
/gene="CP1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       join(2328. .2426,6476. .6690,6751. .7462)
/gene="CP1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2427. .6475
/gene="CP1"
/4546. .4553
/note="insertion site of P{CaSpeR}(50C)"
/citation=[1]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="phenylalanyl tRNA synthetase"
join(8110. .9300,9370. .>9532)
/note="potential orf"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  >9532)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product="cysteine protease"
872. .7707
                                                                                                                                                                                                                       Genetics 144 (4), 1601-1610 (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Join(<8110. .9300,9370.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="CP1"
872. .1000
/gene="CP1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="CP1"
                                                                                                                                                                                                                                                                   (bases 1 to 10772)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6476. .6690
/gene="CP1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6691. .6750
/gene="CP1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2310. .2426
/gene="CP1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6751. .7707
/gene="CP1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'number-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'number-3
                                                                                                                                                                                                     element insertion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ASSYPLV
                                                                                                                                                                                                                                                                                                                                                          Unpublished
                                                                                                                                                                                                                                                97132596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      intron
                                           ORGANISM
                                                                                                                                REFERENCE
AUTHORS
                                                                                                                                                                                                                     JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  exon
                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                      SOURCE
                                                                                                                                                                                                                              EERFELK I FUEDNIK TAKHURFABEKVSFKLAVNKYADLLHHEFROLMUGDET
OLRAADESFKGVTFISPAHVTLPRSVDWRTKCAVTAVKDGGHCGSCWAFSSTGNTTLHY
OLRAADESFKGVTFISPAHVTLPRSVDWRTKCAVTAVKDGGHCGSCWAFSSTGNTTLHY
HFRKSGVLVSLSEQNLVDCSFKYGNNGCNGGLADNARRYIKDNGGIOTEKSYPYEAID
DSCHFUNGGTVGATDRGFTDIPGGDEKKMAEAVATVGPVSVAIDASHESFQFYSEGVIN
EPQCDAQNLDHGVLVVGFGTDESGEDYWLVKNSWGTTWGDKGFIKMLNKENCCGIAS
ASSYPLV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /product-"phenylalanyl trna synthetase"
/db_xref-"PID:92305222"
/db_xref-"PID:92305222"
/translation-"MLJTLRVQGARHWIKSTRCLASSAAPAKSPSSPPQLEVSGSTYA
TDGWTNVTPKILSYVGANKHQTDHPLSIIRQRIVNIFYGAYRNQRGNPLFSVTDQMN
PVVTVQONFDKILIPADHVSRQKSDCYYINQGHILRAHTAHQVELISGGLDBYELVVG
EVYRRDEIDSTHYPVFHQADAVRLVTKDKLFERNPGLEFEETWSGTLADPKLILPHP
                                                                                                                                                                       /product="cysteine proteinase-1"
/db_xref="PID:92305221"
/translation="MRTAVLLPLALLAVAQAVSFADVVMEEWHTFKLEHRKNYQDET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SSWTKPNSPATRRAVKLMEHEMKHVLVGLTKDLFGPRIKYRWVDTYFPFTQPSWELEI
YFDDWLEAVLGGGIMHELIQARGVHQSIGYAFGVGLEMLAWTLEDIDPTRLFWSNDS
GFLSQFSEKDLHNLFRKYRPISHYPQCTNDLSFWLPQDIEVDAGFSPNDFYDLYNSGVAG
DMYEQISLVDKFKHPKTGRSSVCFRIVYRHMERTLTQAEVNEIHKQIASASVDSFNVQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Drosophila melanogaster cysteine proteinase-1 (CP1) gene, complete cds, and phenylalanyl tRNA synthetase gene, partial cds. AF012089 92305220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1695 WYWAWTITIMWKWMWTIWKWAMMKTYRTWWMWKMYWTSRTTTTSAMWMWITWSTWTKYWWA 1754
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1755 YAWMKMWWTRTWARMAWASWARWKWKTSAAAAYSAWRKMWKWWAYRAMKKTWWWAAWKWR 1814
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                05-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 49; DB 14; Length 10772;
Pred. No. 3.55e-11;
70; Mismatches 37; Indels 1
                                                                                         Join(2328. .2426,6476. .6690,6751. .7462)
/gene="CP1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          158 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="insertion site of P{CaSpeR}(50C)"
/citation=[1]
6476. .6690
/gene="CP1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="phenylalanyl tRNA synthetase"
join(8110. .9300,9370. .>9532)
/note="potential orf"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .>9532)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3046 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .9300,9370.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2282 q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                            2427. .6475
/gene="CP1"
4546. .4553
/gene="CP1"
                    /gene="CP1"
2310. .2426
/gene="CP1"
/number=2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6691. .6750
/gene="CP1"
6751. .7707
/gene="CP1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10772 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity 16.9%;
Matches 22; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  join(<8110.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2357 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'number=3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /number=4
                  /gene="(
2310. .;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         :: ::|:::
1842 ATGTTTTAAA 1833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1815 WKAAWWTWRW 1824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AF012089
                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         24
intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
NID
                                           exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  exon
                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
```

g

g

g

```
repeat_region
                PVVTVQONFDNLLIPADHVSRQKSDCYYINQQHLLRAHTTAHQVELISGGLDNTLVYGG
EVYRRDEIDSTHYPYFHQADAVRLYTKDKLFERNPGLELFEETWSGTLADPKLILPHP
SYMKRNSPATRRAYKLMEHBKHYLVGLTKDLFGPR.KYRWYDTYFPPTQPSWRLEI
SKWTKNNEVLGCGIMKHELT
GFLSQPSEKDHNLFRYKPISHYPQCTNBLSFWLPQDIEVDAGFSPNDFYDLVRSVAG
DMVEQISLVDFKFKHPKTGKSSVCFRIVYRHMERTLTQAEVNEIHKQIASASVDSFNVQ
TDGWTNVTPKILSYVGANKHLQTDHPLSIIRQRIVNYFYGAYRNQRGNPLFSVYDQMN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens chromosome 5, BAC clone 119j3 (LBNL H175), complete
                                                                                                                                                                                                                                                                                           1689 AAAKRWWYWAWTIIMWKWWWTWKWAMMKTYRTWWWWKMYWTSRTTITSAMWMWIWSTW 1748
                                                                                                                                                                                                                                                                                                                     1749 TKYWWAYAW-MKMWWIRTWARMAWASWARWKWKTSAAAAYSAWRKMW-KWWAYRAMKKTW 1806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1c 74371)

Kimmerly,W., Bondoc,M., Cheng,J., Connolly,K.S., Gunning,K.M., Radher,K., Miguel,T., Miller,C., Pitluck,S., Pollard,M., Subramanian,S. and Martin,C.H.
Sequencing of human chromosome 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Large Scale Sequence Analysis and Annotation with the Sequence Comparison Analysis (SCAN) System
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Kimmerly, W., Bondoc, M., Cheng, J., Connolly, K.S., Gunning, K.M., Davis, C.A., Kadner, K., Miguel, T., Pitluck, S., Pollard, M., Rojeski, H., Subramanian, S. and Martin, C.H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Submitted (1.AUG-1998) Human Genome Center, DOE Joint Genome Institute, Lawrence Berkeley National Laboratory, MS 74-157, Berkeley, CA 94720, U.S.A. Sequence submitted by:
                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                           5;
                                                                                                                                                                                                                  Score 46; DB 14; Length 10772;
Pred. No. 1.79e-09;
71; Mismatches 45; Indels 2
                                                                                                                                                           158 others
                                                                                                                                                         3046 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                     1807 MWAAWKWRWKAAWWTWRWWYMTTTAAMRAA 1836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                       2282 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Genome Institute.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /rpt_family="Alu"
2295. .2438
/rpt_family="Alu"
2818. .2859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="LBNL H175"
893. .1030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /clone="119j3"
/chromosome="5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Unpublished
3 (bases 1 to 74371)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (bases 1 to 74371)
                                                                                                                                                                                                                Query Match 2.3%;
Best Local Similarity 21.3%;
Matches 32; Conservative
                                                                                                                                                       2357 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /map="5q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ricke, D.O.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Joint
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AC005369
g3367505
                                                                                                                                                         2929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                       BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
```

```
jóin (3246 . 3410,3721. .3828)
/standard_name="RLF"
/note="658 & 698 protein identity GenPept:U22377"
                                                                                                                                                                                                                                                                                                                                    standard_name="possible repeat"
258. 8503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          standard_name="possible repeat"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /rpt_family="Alu"

complement(16993. .17085)

/rpt_family="MER42"

complement(17678. .18276)

/rpt_family="Alu"

19305. .19583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              13783. 14024

/rpt_family="L1"

/4175. 14470

/417£_family="Alu"

complement(14906. 15259)
                                                                                                                                                                                                                                                                                                                                                                                                                    /rpt_family="Alu"

complement(9740 .9845)

/rpt_family="MER42"

complement(10440 .11015)

/rpt_family="Alu"

11950 .12250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement(16675. .16977)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .20222)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /rpt_type=tandem
/rpt_unit=GTTT
complement(19943. .
/rpt_family="Alu"
21202. .21496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /rpt_unit=A
12365. .12645
/rpt_family="Alu"
13727. .13750
/note="(AC)12"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /rpt_family="Alu"
19914. .19945
/note="(GTTT)8"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15300. .15613
/rpt_family="Alu"
16671. .16690
/note="(T)20"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            12057. .12085
/note-"(A)29"
/rpt_type-tandem
                                                                                     /rpt_family="Alu"
3707. 3728
/note="(A)22"
                                                                                                                                                              4366. .4661
/rpt_family="Alu"
                                                                                                                                                                                                           /rpt_family="Alu"
6586. .6956
                                                                                                                                                                                                                                                                                                                                /rpt_family-"Alu" complement(7830.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'rpt_family="Alu"
2057. .12085
                                                                                                                                                                                                                                                                                                                                                                                           rpt_family="Alu"
/rpt_type=tandem/rpt_unit=GT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /rpt_type=tandem
/rpt_unit=T
                                                                                                                                  /rpt_type=tandem
                                                                                                                                                                                                                                        rpt_family="L1"
                                                                                                                                                                                                                                                                                     rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'rpt_type=tandem
'rpt_unit=AC
.3783. .14024
                                                                                                                                                                                                                                                         6647. .6684
/note="(CA)19"
                                                                                                                                                                                                                                                                                                     rpt_unit=CA
                                                                                                                                                   /rpt_unit=A
                                                                          repeat_region
                                                                                                       repeat_region
                                                                                                                                                                  repeat_region
                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                               misc_feature
```

```
Location/Qualifiers
                                                                                                                                                                     annotations omitted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16162 SASCSASCSMR 16172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     382 ATCCCGGCCAA 392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9310114
                                                                                                                                                             ...
Note: remainder of
                   misc_feature
                                                                                                            misc_feature
                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                         a
a
                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                       οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'rpt_family="Alu"
clin(29485. .29559, 29598. .29779)
note="dentity dbsTs:G14522 (SHGC-11312)"
94955. .29976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /standard_mame="AIO27942"
/note="100% identity EST ov84a10.x1"
/note="100% identity EST ov84a10.x1"
complement(30401. .30536)
/note="GRAIL 2 excellent exon, frame 2"
complement(30682. .30733)
/rpt_fanily="MRR"
complement(31573. .31724)
/note="GRAIL 2 excellent exon, frame 1"
/note="GRAIL 2 excellent exon, frame 1"
/note="GRAIL 2 excellent exon, frame 2"
/note="GRAIL 2 excellent exon, frame 2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        frame 2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     frame 1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ō
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2871<u>2</u>, .28930
/rpt_family="MER20"
complement(28769. .28838)
/note="GRAIL 2 excellent exon, frame
28987. .29214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /rpt_family="Alu"
36901. 37222
/note="100% identity EST ou55c09.x1"
/db_xre="dbEST:AI025011"
36901. 37164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement(33670..33785)
/rpt_family="Alu"
complement(34021..34144)
/note="GRAIL 2 excellent exon, fx
complement(35238..35331)
/note="GRAIL 2 excellent exon, fx
36392..36663
                                                                                                                                                    standard_name="possible repeat" 3022. .23326
                                                                                                                                                                                                                                                                                      /rpt_family="MER42"
complement(25349, .25713)
/rpt_family="Alu"
complement(25727, .26471)
/rpt_family="Alu"
/rpt_family="Alu"
/rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /standard_name="STSG-9983"
/db_xref="dbSTS:G26554"
complement(37595. 37654)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /rpt_family="MLT1"
32617. .32908
/rpt_family="Alu"
32977. .33088
/rpt_family="MLT1"
                                                                                                                                                                                                                                                                                                                                                                                                 //rpt_family="Alu"
27774. .28057
/rpt_family="Alu"
/rpt_family="Alu"
21736. .22035
/rpt_family="Alu"
22017. .22038
/note="(A)22"
                                                                                                                                                                                                                                                              /rpt_type=tandem
/rpt_unit=A
complement(24639.
                                                                                                                       /rpt_family="Alu"
complement(22638.
                                                                                                                                                                                                                /rpt_family="Alu"
23744. .23767
/note="(A)24"
                                                                                                                                                                                     'rpt_family="Alu"
:3473. .23761
                                                                            /rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    rpt_type-tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                  28040. .28066
/note="(A)27"
                                                                                             /rpt_unit=A
22321. .224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                 repeat_region
                                                 repeat_region
                                                                                                            repeat_region
                                                                                                                                          repeat_region
                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                       repeat_region
                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
```

```
/db_xref="PID:g310115"
/translation="MRARSALPRSALPRLLLPLLLPAAGPAQFHGEKGISIPDHGFC
QPISIPLCTDIAYNQTIMPNLLGHTNQEDAGLEVHQFYPLVKVQCSPELRFFLCSMYA
/note="GRAIL 2 excellent exon, frame 0" complement(join(38063 .38218,38462 .38578,38741 .38995,39071 .39205,39532 .39630,39935 .40048,40300 .40410,40503 .40661,41868 .41972,42103 .42225,42492 .42569,44379 .44507) / standard_name="histidyl-tRNA synthetase" / note="78%-100% protein identity GenPept:U18937" / note="GRAIL 2 excellent exon, frame 0" / note="GRAIL 2 excellent exon, frame 0" complement(38462 .38578)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Rattus norvegicus
Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Eutheria; Rodentia; Sciurognathi; Myomorpha; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Murines, Rattus.

1 (bases 1 to 1912)
Chan, S.D.H., Karpf, D.B., Fowlkes, M.E., Hooks, M., Bradley, M.S., Vuong, V., Bambino, T., Liu, M.Y.C., Arnaud, C.D., Strewler, G.J. and Nissenson, R.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Db 15925 SKCSCMSRSKSKRGWGYRSWKKYRCAMWMTCKSSKCWCWSYRMRMKCYSCSYCYCSSGKK 15984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15985 YWCRCSMYWYTCYYSYKYYWSMSYCTCTSWGWRWMWSKGRSWMYASRSGCSCSCSMCMMC 16044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               16045 RCSCMSMKMWWTTTTTTTTTTTWTWR-KAGASASRGKSK-CRCMSYGKKSTCK-MKM 16101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      16102 TCYYGMYSWCSYKMKYSRYCCGCCYSSSYCKSCCWMMSWRMKKGSWKKRMWWRCRWGMGY 16161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KATFRZH 1912 bp (mRNA ) ROD 16-JUL-1993
Rattus norvegicus Drosophila polarity gene (frizzled) homologue
mRNA, complete cds.
L02530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Two homologs of the Drosophila polarity gene frizzled (fz) are widely expressed in mammalian tissues
J. Biol. Chem. 267, 25202-25207 (1992)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  203 CICGCCCTICCCCGGCTCCGCTCTGTGCCCCCTCGGGGTCGCGCGCCCACGATGCTGC 262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  263 AGGCCCTGGCTGCTGCTGTTCCTCGCCTCGCACTGCTGGGCTCGGGCCTCGGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             323 GCGGGCTCTTTCCTCTTTTGCCCAGCCCGACTTCTCCTACAA-GCGCAGCAATTGCAAGCCC 381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     frizzled gene; homologue; polarity gene.
Rattus norvegicus (strain Sprague-Dawley) osteosarcoma cDNA to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                144 GGCCCCGAGTCGCACCCAGCGAAGAGAGCGGCCCCGGGAC-AAGCTCCGAACTCCGGCCGC 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="Drosophila polarity gene (frizzled) homologue"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .,
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 2.3%; Score 46; DB 21; Length 74371; Best Local Similarity 13.9%; Pred. No. 1.79e-09; Matches 35; Conservative 126; Mismatches 85; Indels 5;

    1912
    /organism="Rattus norvegicus"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /tissue_type="osteosarcoma"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /strain="Sprague-Dawley"
/db_xref="taxon:10116"
/cell_line="UMR106-01"
/cell_type="osteoblast"
```

ద

g

ò

gg

δ g δ

δŽ

ద

ò

```
LAMGQIDGDLLSGVCFVGLNRLDPLRGFVLAPLFVYLFIGTSFLLAGFVSLFRIRTIM
KHDGTKTEPLERLMVRIGVFSVLYTVPATIVIACYFYEQAFREHWERSWVSQHCKSLA
IPCPAHYTPRTSPDFTVYMIKYLMTLIVGITSGFWIMSGKTLHSWRKFYTRLTNSRHG
SEDGTPALLTTAPPSGLOPGAGGTPGGPGGGAPPRYATLEHPFHCPRVLKVPSYLSY
FFGBRDCAAPCEPARPDGSWFSHHHFTRARMLINWSVLCCASTFFTYTSLYAMO
RFRYPERPITFLSGGTWWSYATIAGFVLOBERVVCNERSEBOSYRTVGQGTKKEGCTI
LFMMLYFFSMASSIWWVILSLTWFLAAGMKWGHAAIEANSQYFFLAAMRVPAYKTITI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="putative Wnt receptor; similar to mouse frizzled-7
                                                                                                                                                                                                                                                                   ñ
                                                                                                                                                                                                                                                                                                                             519 CCCGGACACCAAGAAGTICCIGIGCTCGCICTCGCCCCCGICIGCCTCGAAGACCTAGA 578
                                                                                                                                                                                                                                                                                                                                                                                    288 CCAAGAGGACGCGGGCCTGGAGGTGCATCAATTCTACCCGCTGGTGAAGGTGCAGTGCTC 347
                                                                                                                                                                                                                                                                                                      228 GCTGTGCACGGACAICGCCTACAACCAGACCATCATGCCCAACCTTCTTGGGCACACGAA 287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   348 GCCCGAGCTGCGCTTCTTCCTGTGCTCCATGTACGCTCCGGTGTGCA-CGGTG-CTGGA 404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AF031831 1727 bp mRNA VRT 02-DEC-1997 Gallus gallus 7-transmembrane protein frizzled-7 (Fz-7) mRNA, nuclear gene encoding mitochondrial protein, complete cds. q2655275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gallus gallus
Eukaryotae; Metazoa; Chordata; Vertebrata; Archosauria; Aves;
Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Harvard Medical School, 200
                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        579 CGAGACCATCCAGCCATGCCACTCGCTCTGCGTGCAGGTGAAGGACCGCTGCGCCCGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 (bases 1 to 1727)
Kengaku,M., Twombly,V. and Tabin,C.
Expression of Wnt and Frizzled genes during chick limb bud
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product="7-transmembrane protein frizzled-7"
                                                                                                                                                                                                                         Score 45; DB 22; Length 1912; Pred. No. 6.52e-09;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 press
                                                                                                                                                                                                                                                                 0; Mismatches 114; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ι'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      development
Cold Spring Harb. Symp. Quant. Biol. (1997)
Chases 1 to 1727)
Kengaku,M. and Tabin,C.
                                                                                                                                                                385 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /db_xref="taxon:9031"
/tissne +----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Direct Submission
Submitted (29-OCT-1997) Genetics,
Longwood Ave., Boston, MA 02115
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /tissue_type="limb bud"
                                                                                                                                                                   ρ
                                                                                                                                                                995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="F2-7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="Fz-7"
                                                                                                                                                                                                                       Query Match 2.2%;
Best Local Similarity 60.2%;
Matches 177; Conservative
                                                                                                                                                              662 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .1718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein"
                                                                                                                                                                α
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            chicken
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NID
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                            BASE CO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
```

SOURCE

```
LGERDCGAPCEPGRPNGLMYFKEAEVRFARLWVGVWSVLCCASTLFTVLTYLVDWRRF
SYPERPIIELGGCYPWAVAXAAGFLLEERVVCLERFSEDGYRTVAGGTKKEGCTILF
MILYFFGMASSIWWYILSLTWFLAAGMKWGHEAIEANSQYFHLAAWAYPAVKTTILA
MGQDGDVLSGVCYVGIYSVDSLRGFVLAPLFVYLFIGTSFLLAGFYSLFRIFTIMKH
DGTKTEKLEKLMYGYSVLYTYPATIVYACYFYEGGFSTWHEKTWLLQTCKYYAVP
CPSHFAPMSPDFTVFMIKYLMTMIVGITTGFWIWSGKTLQSWRRFYHRLSTGSKGETA
GFCQPISIPLCTDIAYNQTILPNLLGHTNQEDAGLEVHQFYPLVKVQCSAELKFFLCS
MYAPVCTVLEQAIPPCRSLCERARQGCEALMNKFGFQWPERLRCENFPVHGAGEICVG
QNTSDAPPGPGGAGGRGATAQPTAGYLPDLLTPPQQPAAGFSFSCPRQLKVPPYLGYRF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /db_xref="PID:g736679"
/translation="MRPRSALPRLLLPLLLLPAAGPAGFHGEKGISIPDHGFCQPISI
PLCTDIAINQTIMPNLLGHTNQEDAGLEVHQFYPLVKVQCSPELRFFLCSMYAPVCTV
LEQAIPPCRSICERARQGCEALMNKFGFQWPERLRCEHFPRHGAEQICVGQNHSEDGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          been
                                                                                                                                                                                                                                                                   ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          has
                                                                                                                                                                                                                                                                                                                                                                                                                                              383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     672
                                                                                                                                                                                                                                                                                                  207 CTGCCCAACCTGCTGGGCCACCAACCAGGAGGACGCAGGCCTGGAGGTGCACCAGTTC 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            24-MAY-1996
                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens
Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Eutheria; Primates; Catarrhini; Hominidae, Homo.
1 (bases 1 to 1923)
Zhao,Z., Lee,C.C., Baldini,A. and Caskey,C.T.
A human homologue of the Drosophila polarity gene frizzled hidentified and mapped to 17q21.1
Genomics 27 (2), 370-373 (1995)
                                                                                                                                                                                                                                                                                                                      GCACCGGTTTGCACCG-T-AC-TGGAGCAGGCCATCCCACCCTGCCGCTCCCTATGTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGGGCTCGCCAGGGTTGTGAGGCGCTCATGAACAAGTTTGGCTTCCAGTGGCCGGAGCGG
                                                                                                                                                                                                                                                                                                                                                                       267 TACCCGCTGGTCAAGGTGCTGGTCGCCGAGCTCAAGTTCTTCCTCTGCTCCATGTAC
                                                                                                                                                                                                                                                                   .;
;
                                                                                                                                                                                                                               Length 1727;
                                                                                                                                                                                                                                                                   94; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HUMFRIZ 1923 bp mRNA PRI
Human frizzled gene product mRNA, complete
L37882
                                                                                                                                                                                                                             Score 42; DB 16; I
Pred. No. 2.95e-07;
0; Mismatches 94;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /function="development"
/note="polarity gene; putative"
                                                                                                                                                                              343 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1. .1923
/organism="Homo sapiens"
/db_xref="taxon:9606"
/clone_lib="fz-2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /tissue_type="ovary"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             frizzled gene; polarity gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                              ь
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         133. .1830
/gene="frizzled"
133. .1820
                                                                                                                                                                              521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /chromosome="17"
/map="17q21.1"
133. .1830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        133. .1830
/gene="frizzled"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=
                                                                                                                                                                                                                             ch 2.1%;
1 Similarity 61.4%;
154; Conservative
                                                                                                                                                                          585 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CICCGCIGCGA 454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     673 CTTGAGTGCGA 683
                                                                                                                                                                              ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9736678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   human.
                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                   Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 28
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Source
                                                                                                                                                                          BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                          327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             유
                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δŻ
```

```
9310116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            966
                                                L02529
                                                                                                                   mRNA.
                                                                                                                                                                                                                                                                                                                                                       source
LOCUS
DEFINITION
                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 639
                                              ACCESSION
                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                      MEDLINE
                                                                               KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                           YFFSMASSIWWYILSLTWFLAAGMKWGHEAIEANSOYFHLAAWAVPAWTITILAMGO
IDGDLLSGVCFWGLNSLDPLRGFWLAPLFWYLFIGTSFLLAGFWSLFRIRTIMKHDGT
KTEKLERLEMWRIGVFSWLYVPATIVIACYFWEGAFREHWERSWWSGHCKSLALFCPA
HYTPRWSPDFTWYMFLYVGTISGFWIWSGKTLHSWRKFYTRLINSRHGETTV*
671 c 659 g 356 t
             RDCAAPCEPARPDGSMFFSQEETRFARLWILTWSVLCCASTFFTVTTYLVDMQRFRYP
ERPIIFLSGCYTMVSVAYIAGFVLQERVVCNERFSEDGYRTVVQGTKKEGCTILFMML
                                                                                                                                                                                                 ñ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ဍ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  487 CGCCGGCCTGCTCCACGCACCTCCTTCATGGTCTCGTGGCCCAGCAGCTGGGCCAGCCGCA 428
                                                                                                                                                                                                                                                                                                 CCAGGAGGACGCAGGCCTAGAGGTGCACCAGTTCTATCCGCTGGTGAAGGTGCAGTGCTC 386
                                                                                                                                                                                                                                                                                                                                    518
                                                                                                                                                                                                                                                                                                                                                                     443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               102 GTSSSNGGTDGNRS-GADSYGSSKTAMTSRNRTGKTANNAVDSRNMGDASVGSDKNTKKH 160
                                                                                                                                                                                                                                267 GCTGTGCACGGACATCGCCTACAACCAGACCATCATGCCCAACCTTCTGGGCCACACGAA 326
                                                                                                                                                                                                                                                                 GCTGTGCCACGGCATCGAATACCAGAACATGCGGCTGCCCAACCTGCTGGGCCACGAGAC 458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               43 VCDTDTTYRVNNDSGHNKYSSANYNYGGNNVGAAKTHYYTH-TNVSGADSKTVTDSYNAS 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Unclassified.

1 (bases 1 to 215)
Bennett,A., Labavitch,J.M., Powell,A. and Stotz,H.
Bennett,A., Labavitch,J.M., Powell,A. and Stotz,H.
Blant inhibitors of fungal polygalacturonases and their use ontrol fungal disease
Patent: US 5569830-A 5 29-00T-1996;
                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                  CATGAAGGAGGTGCTGGAGCAGGCCGGCGCTTGGATCCCCGCTGGTCATGAAGCAGTGCCA
                                                                                                                                                                                                                                                                                                                                                                                      519 CCCGGACACCAAGAAGTTCCTGTGCTCGTCTTCGCCCCCGTCTGCCTCGATGACCTAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                     444 ACAGGCCATCCCGCCGTGTGTCTTGTGAGGGGGGGGGGCGGGGGTGCGAAGCCCT
                                                                                                                                                                                                                                                                                                                                                                   GCCCGAACTGCGCTTCTTCCTGTGCTCCATGTACGCACCCGTGTGCACCG-TG--CTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGAGACCATCCAGCCATGCCACTCGCTCTGCGTGCAGGTGAAGGACCGCTGCGCTCCCGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      504 CATGAACAAGTTCGGTTTTCAGTGGCCCGAGCGCCTGCGCTGCGAGCACTTCCC 557
                                                                                                                                                                                                 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CATGICCGCCTICGGCTTCCCCTGGCCCGACATGCTTGAGTGCGACCGTTTCCC
                                                                                                                                                                Score 41; DB 21; Length 1923; Pred. No. 1.03e-06;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 39; DB 17; Length 215;
Pred. No. 1.22e-05;
72; Mismatches 64; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             141 others
                                                                                                                                                                                                 0; Mismatches 116; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   161 AKNSADGKVGSKNNGDRNNRYGTGTKSNVSNNCGGGNKRDVSS 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ų
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            215 bp DNA
Sequence 5 from patent US 5569830.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
1. .215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="unknown"
8 c 25 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ouery Match
Best Local Similarity 14.7%;
Matches 24; Conservative
                                                                                                                                                              Query Match 2.0%;
Best Local Similarity 59.5%;
Matches 175; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         91819054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
NID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
                                                                                                                                                                                                                                                                 399
                                                                                                                                                                                                                                                                                                327
                                                                                                                                                                                                                                                                                                                                  459
                                                                                                                                                                                                                                                                                                                                                                 387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                             ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ე
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                임
                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                 ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
```

```
/ Obc. ref. = PID: 9310117 "
/ Cranslation = "MAEEAVPSESRAAGRPSLELCAVALPGRREEVGHODTAGHRRPF
AHSROWARGLLLLLMLLEAPLLLGARAQPGOYSGOORSPPPOQOGGOOVBORD
ISTPDHGYCOPISIPLCTOLANOTIMPNILGHTNOEDGALPHORYCOSYBERG
ISTPDHGYCOPISIPLCTOLANOTIMPNILGHTNOEDGALPHORYPELVRYCOSAEL
KFELCSMYAPVCTVLEQALPPCRSLCERAQGCEALMNKFGFQWPDTLKCEKFPVHGAG
ELCYGONTSDKGTPPPSLLEPERTXNYOLMYFGGEALMNKFGFQWPDTLKCEKFPVHGAG
ELCYGONTSDKGTPFPSLLEPERTXNYOLMYFGGEELRERTWIGTWSVLCASTLETVLT
YLVDMRRFSYPERDISCETTWYGLAYAAYIAGFLLEDBYVCNDKFAEDGARTVAQCTK
KBGCTILFWMLYFFSMASSTWWYILSLTWFFAAGMKWHEAIEANSOYFHLAAMAVPA
IKTILLALGQVDGDVLSGVCFVGLNNVDALRGFVLAPPLYTFIGGFLLAGRANVPA
IKTILLALGGVDGGCGVPPHPPMSPDFTVFMIKYLMTLIVGITSGFWIMSGKTLNSW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'n
                                                                                                                                                                                                                                                                        Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Eutheria; Rodentia; Sciurognathi; Myomorpha; Muridae;
                                                                                                                                                                                                                                                                                                                                                1 (bases 1 to 4540)
Chan, S.D.H., Karpf, D.B., Fowlkes, M.E., Hooks, M., Bradley, M.S.,
Vuong, V., Bambino, T., Liu, M.Y.C., Arnaud, C.D., Strewler, G.J. and
Nissenson, R.A.
RATFRZZH 4540 bp (mRNA) ROD 16-JUL-1993
Rattus norvegicus Drosophila polarity gene (frizzled) homologue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCTGTGCACGGACATCGCGTACAATCAGACCATCATGCCCAACCTGCTGGGGCCACACAA 1175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1293 GCAGGCGCTGCCTCCCTGCCGCTCCCTGTGCGAGCGCGCCCAGGGCTGC-GAGGCAC--T 1349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         homologs of the Drosophila polarity gene frizzled (fz) are sly expressed in mammalian tissues siol. Chem. 267, 25202-25207 (1992)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (frizzled) homologue'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           459 CATGAAGGAGGTGCTGGAGCAGCCGCGCTTGGATCCCGCTGGTCATGAAGCAGTGCCA 518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        399 GCTGTGCCACGGCATCGAATACCAGAACATGCGGCTGCCCAACCTGCTGGGCCACGAGAC 458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                            polarity gene.
Sprague-Dawley) osteosarcoma cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1176 TCAGGAGGACGCCGGCCTGGAGGTGCACCAGTTCTACCCGTTGGTGAAGGTGCAGTGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1236 AGCCGAGCTCCAAGTTCTTCCTGTGCTCCATGTACGCGCCTGTGTGCA-CGGT-AC-TGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1350 CATGAACAAGTTCGGCTTCCAGTGGCCAGACGCTCAAGTGCGAGAAGTTCCC 1403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ..
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 4540;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Mismatches 107; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   766. .2691
/note="Drosophila polarity gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 38; DB 22; I
Pred. No. 4.10e-05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Rattus norvegicus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /tissue_type="osteosarcoma"
766. .2691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /strain="Sprague-Dawley"
/db_xref="taxon:10116"
/cell_line="UMR106-01"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /cell_type="osteoblast"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1220 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RKFYTRLTNSKOGETTV"
                                                                                                                                                         frizzled gene; homologue;
Rattus norvegicus (strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 1.9%;
Best Local Similarity 61.6%;
Matches 181; Conservative
                                                                  complete cds.
                                                                                                                                                                                                                                                Rattus norvegicus
                                                                                                                                                                                                                                                                                                                                    Murinae; Rattus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          widely exp
J. Biol. (
93094228
```

31

RESULT

30

RESULT

```
/rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ot_unit=A
                     repeat_region
                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                       repeat_region
                                                                                                                         repeat_region
                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                 Comparison Comparison
Unpublished

3 (bases 1 to 74371)
S Kimmerly, W., Bondoc, M., Cheng, J., Connolly, K.S., Gunning, K.M.,
Rojeski, H., Subramanian, S. and Martin, C.H.
Rojeski, H., Subramanian, S. and Martin, C.H.
Direct Submission
L Submitted (01-A06-1998) Human Genome Center, DOE Joint Genome
Institute, Lawrence Berkeley National Laboratory, MS 74-157,
Berkeley, CA 94720, U.S.A.
Sequence submitted by:
DOE Joint Genome Institute.

Location/Qualifiers
AC005369 74371 bp DNA PRI 01-AUG-1998
Homo sapiens chromosome 5, BAC clone 119j3 (LBNL H175), complete
                                                                                                                                   Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 74371)

Kimmerly, W., Bondoc, M., Cheng, J., Connolly, K. S., Gunning, K. M., Kadner, K., Miguel, T., Miller, C., Pitluck, S., Pollard, M., Rojeski, H., Subramanian, S. and Martin, C. H.

Sequencing of human chromosome 5

Unpublished

2 (bases 1 to 74371)
                                                                                                                                                                                                                                                                                                          Large Scale Sequence Analysis and Annotation with the Sequence Comparison Analysis (SCAN) System
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'rpt_unit=Gr
'oin(3246. .3410,3721. .3828)
'standard_name="RLF"
'note="65% & 69% protein identity GenPept:U22377"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'standard_name-"possible repeat"
258. .8503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1. .74371
/organism="Homo sapiens"
/db_xref="taxon:9606"
/map="59"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /112_..._
/113_.7373
/rpt_family="Alu"
complement(7830...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4366. .4661

/rpt_family="Alu"

5327. .560

/rpt_family="Alu"

6586. .6956

/rpt_family="L1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   893. .1030

/rpt_family="Alu"

295. .2438

/rpt_family="Alu"

2818. .2859

/note="(GT)21"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /clone="119j3"
/chromosome="5"
/note="LBNL H175"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         431. .3724
rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /rpt_family="Alu"
9070. .9387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              rpt_type=tandemrpt_unit=A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                647. .6684
note="(CA)19"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1707. .3728
'note="(A)22"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .pt_unit=CA
                                                                                                                     Homo sapiens
                                                                                                                                                                                                                                                                                     Ricke, D.O.
                                 sequence.
AC005369
g3367505
                                                                                                     human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
 LOCUS
DEFINITION
                                                                                                                   ORGANISM
                                                                                                                                                                     REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
JOURNAL
                                                                                                                                                                                                                                      TITLE
JOURNAL
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                          JOURNAL
REFERENCE
AUTHORS
                                                 ACCESSION
                                                                                KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
```

```
/rpt_family="Alu"
complement(14906. .15259)
/standard_name="possible repeat"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                22321. .22457
/rpt_family="Alu"
complement(22638. .22981)
/standard_name="possible repeat"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /rpt_family="MER42"

complement(25349. .25713)

/rpt_family="Alu"

complement(25727. .26471.
/rpt_family="Alu"
complement(9740. .9845)
/rpt_family="MER42"
complement(10440. .11015)
/rpt_family="Alu"
11950. .12250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Complement(16993. .17085)
/rpt_family="MER42"
complement(17678. .18276)
/rpt_family="Alu"
19305. .19583
/rpt_family="Alu"
19914. .19945
/note="(GTIT)8"
                                                                                                                                                                                                                                                                                                                                                                                                                              /rpt_unit=T
complement(16675. .16977)
/rpt_family="Alu"
complement(16993. .17085)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .20223)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /rpt_type=tandem
/rpt_unit_GTrr
complement(19943.
/rpt_family="Alu"
2102. 21496
/rpt_family="Alu"
21736. 22035
/rpt_family="Alu"
22017. 22038
/note="(A)22"
                                                                                                                                                                                                                                                         /rpt_family="L1"
/rpt_family="L1"
/4175. .14470
                                                                                                                                                                                                                                                                                                                                                     15300. .15613
/rpt_family="Alu"
16671. .16690
/note="(T)20"
/rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     rpt_family="Alu"
                                                                                     /rpt_family="Alu"
12057. .12005
                                                                                                                                                                                    rpt_family="Alu"
3727. .13750
'note="(AC)12"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /rpt_family="Alu"
23744 . 23767
/note="(A)24"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        27191. .27477
/rpt_family="Alu"
27774. .28057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         rpt_family="Alu"
3473. .23761
                                                                                                                                          rpt_type=tandem
                                                                                                                                                                                                                                 rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    rpt_type-tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    rpt_type=tandem
                                                                                                                                                                                                                                           /rpt_unit=AC
13783. 1407.
                                                                                                                           note="(A)29'
                                                                                                                                            /rpt_unit=A
12365.
```

```
Adams, W. D. and Loftus, B.J.

Adams, W. D. and Loftus, B.J.

Bolisect Submission

Lorect Submission

Lorect Submission

Medical Center Dr. Rockville, MD 20850, USA, Email:

bjoftus@tigr.org

Medical Center Dr. Rockville, MD 20850, USA, Email:

bjoftus@tigr.org

Medical Center Dr. Rockville, MD 20850, USA

Adams, M. D. and Loftus, B.J.

Birect Submission

M. Rockville, MD 20850, USA

Address all correspondence to: Mark Adams The Institute for Genomic Research, 9712

Medical Center Dr., Rockville, MD 20850, USA

Address all correspondence to: Mark Adams The Institute for Genomic Research 9712 Medical Center Dr., Rockville, MD 20850, USA

Address all correspondence to: Mark Adams The Institute for Genomic Research 9712 Medical Center Dr., Rockville, MD 20850, USA e-mail address: hungen@tigr.org

Research 9712 Medical Center Dr., Rockville, MD 20850, USA e-mail

address: hungen@tigr.org

Research 9712 Medical Center Dr., Rockville, MD 20850, USA e-mail

address: hungen@tigr.org

Research 9712 Medical Center Dr., Rockville, MD 20850, USA e-mail

address: hungen@tigr.org

Research 9712 Medical Center Dr., Rockville, MD 20850, USA e-mail

address: hungen@tigr.org

Research 9712 Medical Center Dr., Rockville, MD 20850, USA e-mail

address: hungen@tigr.org

Research 9712 Medical Center Dr., Rockville, MD 20850, USA e-mail

address: hungen@tigr.org

Athur.-app.org

Athur.-app.org

Athur.-app.org

Address all correspondence to: Mark Adams are termed

Andress without pepetide homolgy having spliced EST hits are termed

Andress without pepetide homolgy having spliced EST hits are termed

Andress without pepetide homolgy having spliced EST hits are termed

Andress without pepetide homolgy having spliced EST hits are termed

Andress without pepetide homolgy having spliced EST hits are termed

Andress without pepetide homolgy having spliced EST hits are termed

Andress without semi-file for Genes encoding trans-

Andress without semi-file for Genes encoding trans-

Andress without semi-file for Genes encoding trans-

Andress 
                                                                                                                                                                  Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 216021)

2 damas,M.D., Loftus,B.J., Zhou,L., Crosby,M., Fuhrmann,J., Mason,T.M., Brandon,R., Kim,U.J., Kerlavage,A.R. and Venter,J.C. Homo sapiens Chromosome 16 BAC clone CIT987SK-A-952F10 Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1455 GKKKYMWKSMRRARRGSAGKKKKKYYYYYCYYYYYYYY - CMGRAMMAAAWYYKRRSCMA 1513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /db_xref="dbSTS:G02122"
175801. 175945
//db_xref="log14, CHLC.GCT10802, Chr. -, Homo sapiens"
//db_xref="dbSTS:G09703"
//note="16316, CHLC.GCT15C04, Chr. -, Homo sapiens"
//db_xref="dbSTS:G09935"
199463. 199572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           27765. .27872
/note="7766, STS1-cSRL-27g3-uA/cSRL-27g3-uZ, Chr.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /db_xref="dbsTs:G02280"
73826. .73943
/note="7608, STS1-cSRL-24g1-uA/cSRL-24g1-u2, Chr.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 34; DB 21; Length 216021;
Pred. No. 4.62e-03;
63; Mismatches 39; Indels 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 216021;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="9824, WI-3555, Chr. 16, Homo saplens" /db_xref="dbsTs:G04338" 60960 a 51778 c 49172 g 53987 t 124 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="16"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /map="#16q21-22"
/clone="A-952F10"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 1.7%;
Best Local Similarity 13.4%;
Matches 16; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sapiens"
                                                                                                                                                Homo sapiens
sequence.
AC004787
93337381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
ORIGIN
                                                                                                                                          ORGANISM
                        ACCESSION
NID
                                                                                                                                                                                                                                                                                                                                             JOURNAL
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SIS
                                                                                 KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
                                                                                                               SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /standard_name="STSG-9983"
/db_xref="dbSTS:G26554"
complement(37595. .37654)
/note="GRAIL 2 excellent exon, frame 0"
complement(1010,18063. .38218,38462. .38578,38741. .38999
39071. .39205,39532. .39630,39935. .40048,40300. .40410,40503. .40561,41868. .41972,42103. .42225,42492. .42569,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        15910 RSRGWSTCKCKCTSTSKCSCMSRSKSKRGWGYRSWKKYRCAMWMTCKSSKCWCWSYRMRM 15969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /standard_name="histidyl-tRNA synthetase"
/note="78%-100% protein identity GenPept:U18937"
complement(38069. .38215)
/note="GRAIL 2 excellent exon, frame 0"
complement(38462. .38578)
                                                                                                                                                                                                                                                   /rpt_family="Alu"
join(29485. 29559. 29598. .29779)
/note="95% identity dbsTs:G14522 (SHGC-11312)"
/obs5. .29976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 1.7%; Score 34; DB 21; Length 74371;
Best Local Similarity 14.4%; Pred. No. 4.62e-03;
                                                                                                                                                                                                                                                                                                                                                                  /standard_name="A1027942"
/note="100% identity EST ov84a10.x1"
/note="GRALL 2 excellent exon, frame 2"
complement(30682. 30733)
/rpt_family="MIR"
complement(31873. 31724)
/note="GRALL 2 excellent exon, frame 1"
complement(31873. 31724)
/note="GRALL 2 excellent exon, frame 1"
/note="GRALL 2 excellent exon, frame 2"
/note="GRALL 2 excellent exon, frame 2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  54; Mismatches 35; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note-"GRAIL 2 excellent exon, frame 2" complement(35238. 35331) /note-"GRAIL 2 excellent exon, frame 1" 36392. 36663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Db 15970 KCYSCSYCYCSSGKKYWCRCSMYWYTCYYSYKYYWSMSYCTCTS 16013
                                                                                                                                    /rpt_family="MER20"
complement(28769. .28838)
/note="GRAIL 2 excellent exon, frame 0"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /rpt_femily="Alu"
36901. 37222
/note="100% identity EST ou55c09.x1"
/db xref="dbeST:AI025011"
36901. 37164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    32977. .33088
/rpt_family="MLT1"
complement(33670. .33785)
/rpt_family="Alu"
complement(34021. .34144)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /rpt_family="MLT1"
32617. .32908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /rpt_family="Alu"
32977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Note: remainder of annotations omitted.
                                                   /rpt_type=tandem
                                                                                 /rpt_unit=A
28712. .28930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .32488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     15; Conservative
repeat_region
                                                                                                               repeat_region
                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                     misc_feature
                                                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
```

1514 WYYYMRGRARKTYYYMARRRGCARSYKKYMAMYWAAWTTWCAAAAMAAMYTTYYWMMWY 1572

> ò g

> > LOCUS HUACO04787 216021 bp DNA PRI 24-JUL-1998 DEFINITION Homo sapiens Chromosome 16 BAC clone CIT9875K-A-952F10, complete

Matches

අ

ò

```
Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9450879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  King
                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOURCE
ORGANISM
                                                                                                                                                                                                                                                                  BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
 FEATURES
                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                                                                                                                   ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sp
                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                 ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                     #
N
                                                                                                                                                                                                                                                                                                                                                                                                                                  ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Theses 1 to 354) witherspoon, D.J., Doak, T.G., Williams, K., Seger, J. and Herrick, G. Selection on the protein-coding genes of the TBE1 family of transposable elements in the ciliates Oxytricha fallax and O.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3 (bases 1 to 354)
Doak, T.G., Williams, K., Witherspoon, D.J. and Herrick, G.
Direct Submission
Submitted (11-FEB-1997) Oncological Science, University of Utah, school of Med. Rm5C334, USA, UT 84132, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OFU89259 354 bp DNA INV 14-MAR-1997 Oxytricha fallax 57kD zinc finger/protein chimera gene, partial
                                                                                                                                                                                                                                                   <u>2</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 64 ANYNYGGNNVGAAKTHYYTHTNVSGADSKTVTDSYNASGTSSSNGGTDGNRSGADSYGSS 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                124 KTAMTSRNRTGKTANNAVDSRNMGDASVGSDKNTKKHAKNSADGKVGSKNNGDRNNRYGT 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               382 ATCCCGGCCAACCTGCAGCTGTGCCACGGCATCGAATACCAGAACATGCGGCTGCCCAAC 441
30-0CT-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4 VIMSSSSVVSRIASCNDKAKKDGNTISSWTTDCCNRTWGVCDTDTITRVNNDSGHNKYSS 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryotae; mitochondrial eukaryotes; Alveolata; Ciliophora; hypotrichs; Stichotrichida; Oxytricha.

1 (bases I to 34) book. To 54) book. T.G., Doerder.F.P., Jahn,C.L. and Herrick,G. A proposed superfamily of transposase genes: transposon-like elements in ciliated protozoa and a common 'D35E' motif Proc. Natl. Acad. Sci. U.S.A. 91 (3), 942-946 (1994)
                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                               1 (bases 1 to 215)
Bennett,A., Labavitch,J.M., Powell,A. and Stotz,H.
Plant inhibitors of fungal polygalacturonases and their use
control fungal disease
Patent: US 5569830-A 5 29-OCT-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                442 CTGCTGGGCCACGAGACCATGAAGGAGGTGCTGGAGCAGGCCGGCGCTTGGATCCCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ï
                                                                                                                                                                                                                                                                                                                                                                                                  Length 215;
                                                                                                                                                                                                                                                                                                                                                  141 others
                                                                                                                                                                                                                                                                                                                                                                                              Score 31; DB 17; Length 215
Pred. No. 1.35e-01;
82; Mismatches 95; Indels
                                                                                   PAT
                                                                                                                                                                                                                                                                                                                                                  u
                                                                                                                                                                                                                                                                                                                                                56
                                                                    178278 215 bp DNA
Sequence 5 from patent US 5569830.
128278
                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                 /organism="unknown"
                                                                                                                                                                                                                                                                                                                                                25 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               184 GIKSNVSNNCGGGNKRDVSS 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              561 CIGCCICGAIGACCIAGACG 580
                                                                                                                                                                                                                                                                                                                                                                                              Match 1.5%;
Local Similarity 11.0%;
les 22; Conservative
                                                                                                                                                                                                                                                                                                                                                ပ
ထ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Oxytricha fallax.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Oxytricha fallax
                                                                                                                                                                                                Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Unpublished
                                                                                                                                                                                                                                                                                                                                                  Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               91881675
                                                                                                                               91819054
                                                                                                                                                                                                                                                                                                                                                15
                                                                                                                                                                 Unknown.
                                                                                                                                                                                    Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              U89259
                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                33
                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 34
                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                               BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                                                AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                               Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                ACCESSION
                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NID
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                KEYWORDS
                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                RESULT
                                                                                                                               NID
```

ò g g

ò

g

ò

```
/translation="GTTYSCVGVWQHDRVEIIANDGGNRTTPSYVAFTDSEKLIGLA
FROVAMSPYWTWTPDAKRLIGRRFSDSSVQSDWKLWPFKIQAGPADKPMIYVEYAGZEK
EFRAFELSSWYLIKWRELBAYLGVTUSVAFYNDSQRQATKDAGVIAGLWVI
RIINREPTAAAAIAYGLDKKAFRYGEKNYLIFDLGGGFPPVSLLITEEGIFEVKATAGET
                                                                                                             /note="this is a bulk sequence that was generated from a PCR product that represents many transposon templates"
                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Direct Submission
Submitted (22-JAN-1994) K. King, Dept of Genetics, Universitaet
Submitted, Auf der Morgenstelle 28, 72076 Tuebingen, FRG
Location/Qualifiers
1. .4297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  66 WGAMRHWSARYTRAAGYTDCTCAAHAAAAGAAARGCDAGRGARYHHYHDWARGWBGYDGW 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          26-JAN-1994
                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryotae; mitochondrial eukaryotes; Viridiplantae;
Charophyta/Embryophyta group; Embryophyta; Magnoliophyta;
Magnoliopsida; Capparales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                 Length 354;
                                                                                                                                                                                                                                                                                                           111 others
                                                                                                                                                                                                                                                                                                                                                                 Score 30; DB 14; Length 354
Pred. No. 4.02e-01;
37; Mismatches 29; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PLN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cognate 70-1"
                                 /organism="Oxytricha fallax"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /db_xref="SWISS-PROT:P22953"
                                                                                                                                                                                                                                                                                                           ų
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              heat shock cognate 70-1; hsc70 gene.
thale cress.
Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                           54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .171,496. .2238)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product="heat shock c
/db_xref="PID:g450880"
                                                                         /db_xref="taxon:5944"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         126 GCYYKAAYAAGCWAGMGARWYASWRTRY 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /strain="Ostwestfalen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /db_xref="taxon:3702"
/tissue_type="leaf"
/clone="Athsc70g"
Location/Qualifiers
                                                                                                                                                                                                                                                                                                             þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DNA
                                                                                             /transposon="TBE1
                                                                                                                                                                                                                                                                                                           41
                                                                                                                                                                                                                                                                                         XDHQYAYKVYPFNYL'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="Hsc70-1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A.thaliana hsc70-1 gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="Hsc70-1"
                                                                                                                                                                        /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="Hsc70-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=
                                                       /strain="9D1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2 (bases 1 to 4297)
King, K.
                                                                                                                                                                                                                                                                                                                                                                 Query Match 1.5%;
Best Local Similarity 25.0%;
Matches 22; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (bases 1 to 4297)
                                                                                                                                                                                                                                                                                                         42 C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /number=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          join(<1.
```

```
/evidence-not_experimental
//dxxref="ptD:g726882"
//translation="wYGVCFHR"
//translation="wGVCFHR"
CFSAYHFFLGVAL"
//TRANSLATION="WGVCFHR"
//TRANSLATIO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NYFLRIKNNLTMISOILPFTSSWDFEKVRSLTYIEHPKYDLSIYEPFVGFHNIASFOF
TLATILLLYGAXAIPAISGEFTSRYIHLINDRGMSLKTKEGSKTLAYGLACGFFLPV
ICYIPVASCYIESGMTSVELLINEHLLGILICFPSFVDPFISFYFIVPYRQALLGLFR
CRKTKPLNIVITVRHLSKRNPSIVDSN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /evidence=not_experimental
//d_xref="PID:9726384"
//translation="%LSDDFSLFSYDYDDKADAHDADAAFRKFEALCSARSQQPSTSK
PSLIDALCTSALKER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement(join(19741 . 19827,19873 . 20071,20408 . 20658, 20735 . 21024,21677 . 21346,21423 . 21624,21674 . 21793, 21924 . 22110,22353 . 22900, 22950 . 23072,23118 . 23551, 23600 . 23743,23809 . 23993,24055 . 24070))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Coding sequences below are predicted from computer analysis, using the program Genefinder (P. Green and L. Hillier, ms in
Staden, R., Sulston, J., Thierry-Mieg, J., Thomas, K., Vaudin, M.,
Vardynan, K., Wateszton, R., Watson, A., Weinstock, L.,
Wilkinson-Sproat, J. and Wohldman, P.
2.2 Mb of contiguous nucleotide sequence from chromosome III of C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The 5' cosmid is C07DIO, 200 bp overlap;3' cosmid is T19C12. Actual start of this cosmid is at base position 197 of CELK02A2; actual end is at bp 38262 of CELK02A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Genome Sequencing Center
Department of Genetics, Washington University,
St. Louis, MO 63110, USA, and
Sanger Centre, Hinxton Hall
Cambridge CB10 IRQ, England
e-mail: rw@nematode.wustl.edu and jes@sanger.ac.uk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2467. :4404
/gene="K02A2.2"
joint/2467. :2528,2604. :2700,2748. :2885,3030. :3083,
3384. :3666,3705. :3804,4217. :4404)
/gene="K02A2.2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="similar to C. elegans protein E04F6.1"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement(join(4846. .4918,4971. .5077))
/gene="K02A2.5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   The sequence of C. elegans cosmid K02A2 Unpublished (1994) 3 (bases 1 to 38262) Waterston, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement(19741. .24070)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(4846. .5077)
                                                                                                                                                                                Nature 368 (6466), 32-38 (1994)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NEIGHBORING COSMID INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'strain-"Bristol N2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Submitted (13-JUL-1995)
Submitted (13-JUL-1995)
Submitted by:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="K02A2.5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
                                                                                                                                                                                                                                              2 (bases 1 to 38262)
Hallsworth, K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       preparation)
                                                                                                                                               elegans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The 5'
Actual
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NOTES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                              REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product-"heat shock cognate 70-2"
/db_xref-"PiD:9450881"
/db_xref-"SWISS-PROT:P22954"
/translation-"MAGKGKCBATAGIDLGTTYSCVGVWQHDRVEIIANDGGNRTTPSY
VAFTDSERLIGDAAKNQVANNPVNTVFDAKRLIGRRFSDASVQSDRQLWPFTII"
                             DSLYEGIDFYSTITRAŘFEELMADLFRKCMEPVEKCLRDAKMDKSTVHDVVLVGGSTR
IPKVQQLLQDFFNGFELCKSINPVERAVVSGAAVQGAILSGEGNEKVQDLLLLDVTPLS
IGLETAGGVWTTLIPRINTIPTKKEQVFSTYSDNQPGVLIQÝYEGERRARTNDNLLGK
FELGSIPPAPRGVPQITANTIPTKASDKTTGGKNKVYITNDKGRLSKDEIE
KMVQFAEKYKSEDEEKKKPAKNALDNYAYMKNTTQDEKIGEKLPAADKKIEDSI
EQAIQWLEGNQIAEADEKEDKMELESICNPIIAKMYQGAGGEAGGPGASGMDDDAPP
HLGGEDFDNRMVNHFVQEFKRKSKKDITGNPRALRRLRTSCERAKRTLSSTAQTTIEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryotae; mitochondisal eukaryotes; Metazoa; Nematoda; Secernentea; Rhabditia; Rhabditida; Rhabditida; Rhabditida; Rhabditida; Babditida; Babditida; Babditida; Babditida; Babditida; Babditida; Babditida; Caper, Caper, Caper, Caper, Caratton, Connell, M., Copsey, T., Cooper, J., Conlens, A., Craxton, M., Daar, S., Durbin, R., Favello, A., Fulton, L., Gardner, A., Green, P., Hawkins, T., Hillier, L., Jier, M., Johnston, L., Jones, M., Kershaw, J., Kirsten, J., Laster, N., Latreille, P., Lightning, J., Lloyd, C., McMurray, A., Mortimore, B., O'Callaghan, M., Parsons, J., Epercy, C., Rifken, L., Sonnhammer, E., Saunders, D., Shownkeen, R., Smaldon, N., Smith, A., Sonnhammer, E.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2982 GCTTATTTTTTTTTTTTTTTGGTCAACCTTGATGCTTTGGTTATAGCTTGGATTTGTGAT 3041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2021 GCTTTTTTTTTTTTTTTTAGGTAAACAGGATGTAAAGTTTATATACAAGAATATAATG 1962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               13-JUL-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 30; DB 19; Length 4297;
Pred. No. 4.02e-01;
0; Mismatches 35; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ΙΝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3042 TITAICIGGAITITITACITIGACGITITIAIGCTITATIT 3081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Caenorhabditis elegans strain-Bristol N2. Caenorhabditis elegans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3695. 4297
/gene="Hsc70-2"
join(3695. 3908,4217. >4297)
/gene="Hsc70-2"
/note="see also M23106"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             906 g 1379 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CELKO2A2 38262 bp DNA
Caenorhabditis elegans cosmid KO2A2.
U23171
9726381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4217. >4297
/gene="Hsc70-2"
/note="see also M23106"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="see also M23106"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="see also M23106"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3909. .4216
/gene="Hsc70-2"
                                                                                                                                                                                                                                                                                      172. .495
/gene="Hsc70-1"
                                                                                                                                                                                                                                                                                                                                                                                      496. .>2238
/gene="Hsc70-1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             <3695. .3908
/gene="Hsc70-2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
                                                                                                                                                                                                                                              ASGGAGPKIEEVD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 1.5%;
Best Local Similarity 65.0%;
Matches 65; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             840 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /number=2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /number=2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'number=1
                                                                                                                                                                                                                                                                                                                                                            'number-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'number=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                <3695.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              36
                                                                                                                                                                                                                                                                                      intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                             exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
```

Сp g S

```
HTG; HTGS_PHASE1.
                                                                                                                                                                                                                                                                                                                         VRTTWR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20280 TTTCGAA 20286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1406 TTATGAA 1412
                                                                                                                                                                                                                                                                                                                                                        12820 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               45310 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         93218193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     37
                                                                                                                                                                                                                                                                                                                                                    BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        join(26353. .26567,26616. .26712,26757. .26894,28725. .29289,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="K02A2.4"
complement(join(29971. .30119,30168. .30403,30450. .30655))
/gene="K02A2.4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement(join(33175. .33695,33825. .35082,35609. .37636))
/gene="K02A2.6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LDQLKYFLYNTAFVQILVIICGYFTQHRSLDNSTTFAVLANGPCRVFGTTVCFGGYHY
FLGYTFCVALSISNNYIYRFLILRRDITKKHLIYIIILSYVPGIITTYAPLILISFN
FLGYTFCVALSISNNYIYRFLILRRDITKKHLIXIIILSYVPGIITTYAPLILISFN
LVSFLIDGATFFFREKLAAQHGYRALVATVALYDDIYGKGIRCTDISSATTLRRMTSDR
NGKLKFRLEAALNAKSVPCYDKQKLGAFGFCIGGLCSLDCARYRFDGIRAVISFHGT
LTPIEGIPLELLIDDNSIQVHHGDADKHYSKYTVDAFFIEEMRARNSDFVFISHGRAMHS
FTDPESAGIAPSGVYDANARKSWRATLEFLKEAFA"
                                                                                                                                                                                                      QASFISGYTTPGPKERATSEHVKANLGVMLGVYLPTIQHILGVTMFIRLFWVVGMSGV
AWTMALLAICCLSTLLTSISLSAVATNGVVESGGAYFIISRNLGAEFGSAVGILFYLA
NTVAASMYIVGGVEVILMYLWPEMAIGGADALHDTEMFGSLYNNLRLYGTVFLLIQAL
IVAMGVKFVQLLAPVSLMCVILAIAAGIGGGIEKQITMEGMKVCAIDNHLLQSSIVTH
                                                                                                                                                                                                                                                                                                                                          PIHKNOTSWENETVDFCNLCDKSLYLESVFCANVNNDBASAEDDVFCTHYTSKKWTCO
LEFGEFNWRTLINDNMPERMEKSEVVPGVRGRETAEVVQDESGTFFMLMAIYEPAVTG
LEFGENMSGDLRDGKSIPVGTAATLITSAIXYILAILFGGSITRSVLRDKFGRSIG
NTMVVAALSWPHPAVVTVGAFLSTFGAALQCLGSAPRLLQSIARDDVIFILAPPARVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KNNEPFLGLVLTVI IAECGILLGAVDKIAËVLDFFFIMTLSLLGAALCFFIMFASSVP
CATACATATATIKYVEWKRAKKEWGDOMRGLALLTAQYSLLKVEDKDPHPKUMRPQV
LILLITSOWSKEMIDDRAVSMLNLGAQLKAGCLAIACATLKGSVDSQKDKNRARDVYT
TLVKDMSSVRLRGFAKTMFYNNHQINGTISGLYQSIGLGGLRPDTILLDMPNERNPDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OHKVWKGCTLRIFAVSEODSTKSEDMKAGLOKYIYMLRIDAELFIVDLLDMEVSDEVV
EKAAEVERKOKEREEMRRSKSCYLNDGFMEDNGKPROVMMRHSDSARSFSPOPCAHTS
INLDETETSFTESLFDDFYRSGTPNEDLEGAMKLNIHKMNTSVRLNRVIRENSPDSQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VEASEKKNEKLKLSDVHDEWMKFIQMHQQSKIVSVKPSKSSQQVDVKVDINKSKKKK
VPIRKPEKSSQDSKKKGEIPTCFYCKKGHYAINCSNPRTGNOGONKGKSRGCDSV
HVDGLDVKTEHQAKHRAVSVVCGKDVAFQLDTGSMITLISVKCWEKLGSPPLEKVPHR
ISCANGTPMAVKGGCLVKFKLKGIEYTEYVYRDRQTNLLGTSWLNCPOMRSALAQI
VNQVSTSETEASRLEVMLKNDFPEVFKDGLGLCTKERAEFRTEENAVPVFKRARPVPY
SCEAVVTELNRLQEMGYIVPTTYSQLDKKAPTVKKGTGKKIRVCADFRCSGLNAALK
DEFHPLPTSEDIFFSRLKGTYSQLDLKDAYLQVELDEBAQKLAVINTHRGIFKYLRMT
FGLKPAPASFQKIMDKAVSGLYGVAVWDDIIISASSTEBHEKILRELFERREEYGFR
VSAEKCAFAQKQVTFLGFVDEHGRRPDSKKTEAIRSMKAPTDQKQLASFLGAADWLSR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /translation="MADDSNRFVLXFDVYXYSYFIIGVFAQSVLXLIKNKSPPRLYS
FCYFLINTWIVQFAVLLMTFFTQSRCLPNSTTYTVLPRGPCKYFGPTACFAGYHISLA
VSMAVALSFANTVLFRYLPIRFHGFNKNLFFDDDNCMLHSSNISCDCTFSGHLGFSKS
TYLHLPRTSDVRFFNIRTISLVFRISNQFHFSLRL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /evidence=not_experimental
/db_xxref="piD:9726387"
/db_xxref="piD:9726387"
/translation="MNDLKSIQKFOFNVAEPEAFKRWLARNKLIFVEDGKNLSERER
TRLLLGCLEESTFHFYEDSQREISDIYSISPDTYTALIKIFGSTKSLMARRQQCLQI
CRANCLSQDYLDYTNSISDAVLDSKLSSMTSDEWSIFLFLRGLNSPGDEKAKLYLMQY
                                                                                                                                    /db_xref="PID:g726386"
/translation="MGKGGGRMETVGEDGIPADYKGNRKFTTSLGHLALYKEDEGIGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LVLFAEEIIHGAANDNCLIVTKGITDFPEYSERLTGFIDIWWIVQDGGILMLIAYLLR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /translation="MSDRSNYSNRFVSYVNAYFHFFLVAGLTFOCILLYLIRTKSPAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="similar to C. elegans protein E04F6.1; coded for by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="similar to silkwork transposon mag (PIR:S08405) and POL polyprotein (reverse transcriptase)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ILLNLPSPPRNRLAFNNSYMTYLDVLTEDLPRVLFIGGSGREVITIDS"
      bumetanide-sensitive Na-K-Cl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="similar to C. elegans protein E04F6.1"
/note="similar to bumetanid
cotransporter (PIR:A53491)"
                                                                                                           /evidence=not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /evidence=not_experimental/db_xref="PID:g726385"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement(29971. .30655)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C. elegans cDNA CEESP19F<sup>n</sup>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(33175. .37636)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /db_xref="PID:9726383"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      26353. .29441
/gene="K02A2.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    29341. .29441)
/gene="K02A2.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="K02A2.6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=
```

gene

CDS

gene

CDS

```
Direct Submission

Submitted (10-JUN-1998) Wellcome Trust Genome Campus, Hinxton, cambridgeshir. CB10 15A, UK. E-mail enquires:

Cambridgeshir. CB10 15A, UK. E-mail enquires:

humquery@sanger.ac.uk Clone requests: clonerequest@sanger.ac.uk

IMPORTANT: This sequence is unfinished and does not necessarily represent the correct sequence. Work on the sequence is in progress and the release of this data is based on the understanding that the sequence may change as work continues. The sequence may be contaminated with foreign sequence from E.coli, yeast, vector, phage etc. Order of segments is not known; 800 n's separate segments. Unfinished: dJilliny Contig_ID: 00411 acc-AL025574

Length: 55440 bp Unfinished: dJilliny Contig_ID: 00133
                           AGPLNGCYLLVVVDAKTKYAEVKLTRSISAVTTIDLLEEIFSHGYPETIISDNGTOL
TSHLFAQMCQSHGIEHKTSAVYYPRSNGAAERFVDTLKRGIAKIKGEGSVNQQILNKF
LISYRNTPHSALNGSTPAECHFGRKIRTTMSLLMPTDRVLKVPKLTQYQQNMKHHYEL
                                                                                                                              RNGARAKAFOVNQKVYVQVHHGNKSOWKHGVIRRKFGGVLYEVQVGDRNÖKSHVNQIR
TRYGDYSKSSVNPRLSSDPLGFVGESGGDEMSRNDDPVVTSNGSSTDVNRGSRITSEL
KKRESNAVRGQPCGSCSPTNNDVSAFGYASRSHPTIDPSHSVRSSRIRRVLDRYGSS
VEHPSTSTGTPRGSTSTQLGQASTRNGSRYTASGRNPSCQGNRYSSIRGEGVTARRER
QMKQKARSFVFWRGLDSDIENMVRHCNNCQENSKMPRVVPLNPWPVPEAPWKRIHIDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20220 AAAGCGAAACTICAICCGAAACTIAIAGAAATAATCAAAATAAATGAAAACTIGAGAATTI 20279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * This sequence is unfinished. When sequencing is complete,

* the sequence data presented in this record will be replaced

*by a single finished sequence with the same accession number.

Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;
Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 147898)
Errington, H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10-JUN-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HSILLING 147898 bp DNA HTG 10-JUN-1996
Human DNA sequence *** SEQUENCING IN PROGRESS *** from clone
AL022574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             *** WARNING: Phase 1 High Throughput Genome Sequence ***
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                  Length 38262;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 147898;
                                                                                                                                                                                                                                                                                                                                                                                                  Score 31; DB 14; Length 3826
Pred. No. 1.35e-01;
0; Mismatches 18; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    800 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 1.5%; Score 31; DB 13; Length 147
Best Local Similarity 86.0%; Pred. No. 1.35e-01;
Matches 37; Conservative 0; Mismatches 6; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Db 121135 TTTTTTTTTTTAAAAAAGGACGTAAAAGGTTTTTAAACAAG 121177
                                                                                                                                                                                                                                                                                                      6904 g 11903 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          27317 c 27139 g 47332 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1. .147898
/organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="X"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /clone="1111N9"
                                                                                                                                                                                                                                                                                                                                                                                               / Match
Local Similarity 73.1%;
nes 49; Conservative
                                                                                                                                                                                                                                                                                                  6635 c
```

25

ä

Gaps

04-JAN-1996

KEYWORDS

COMMENT

```
Homo sapiens
Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Fukaryotae; mitochondra, Osteichthyes; Sarcopteryqil; Choanata;
Tetrapoda; Amiotae; Mammalia; Theria; Eutheria; Archonta; Primates;
Catarrhini; Hominidae; Homo.
1 (bases 1 to 400)
                                                                                                                                                                                                                             Prepared with primer pairs derived from U01691 -- Unigene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Initial incubation: 94 degrees C for 90 seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Stanford Human Genome Center (SHGC)
Stanford University School of Medicine
Department of Genetics, M-344, Stanford, CA 94305, USA
Tel: 4157259689
                                                                                                                                            Length 307;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         94 degrees C for 1:
62 degrees C for 2:
72 degrees C for 3(
30
Perkin Elmer 9600
                                                                                                                                                                                                                                                                                                                                                                            SIS
                                                                                                                                                                                                                                                                                                                                                                                                                      g1129337
STS sequence; primer; sequence tagged site.
                            /organism="Plasmodium falciparum"
/db_xref="taxon:5833"
1. .307
                                                                                                                                              Score 29; DB 14; Le
Pred. No. 1.17e+00;
0; Mismatches 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        each 200 uM
0.05 units/ul
10 ul
                                                                               TA135"
115 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Primer A: ACGTCATAGAAGAAAATAGTGGTGC
Primer B: GAAAATGGCCAGGCATTAAA
STS size: 113
PCR Profile:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              each 1 uM
                                                                               /note="microsatellite
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          죝줱줱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Email: myers@shgc.stanford.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ng
                                                                                              15 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
1. .400
 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2.5
20
20
8.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Contact: Richard M. Myers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Polymerization:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Thermal Cycler:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         dNTPs:
Taq Polymerase:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Denaturation:
Annealing:
                                                                                                                                                                                                                                                                                                                                                                      400 bp
human STS SHGC-11851.
G13598
                                                                                                                                          Best Local Similarity 72.4%;
Matches 55; Conservative
                                                                                                                                                                                                                                                                                               2004 AAAAAAAAAAAAA 2019
                                                                                              15 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Total Vol:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Unpublished (1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PCR Cycles
                                                                                                                                                                                                                                                                           91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          remplate:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Tris-HCl:
             307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Primer:
                                                                                                                                                                                                                                                                           76 AAAAAAAAAAAATAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MgC12:
                                                                                               162 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Myers, R.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Protocol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Buffer:
                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                        human.
                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
ACCESSION
NID
                                                                                                                                                                                                                                                                                                                                                          40
                   source
                                                                                              BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                        KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                  Eukaryotae: mitochondial eukaryotes; Metazoa; Arthropoda;
Tracheata; Insecta; Pterrygota; Diptera; Brachycera; Muscomorpha;
Ephydroidea; Drosophilidae; Drosophila.
I (bases 1 to 156)
European Drosophila Mapping, Consortium.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ĥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2 (bases 1 to 307)
Su.X.z. and Wellems.T.E.
Direct Submission
Submitted (27-JUN-1997) NIAID-Laboratory of Parasitic Diseases,
NIH, Bethesda, MD 20892, USA
                                                                DM36D7S 156 bp DNA STS 16-APR-1996
D. melanogaster STS determined from European Mapping Project
cosmid.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           16-JUL-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            malaria parasite P. falciparum.
Plasmodium falciparum
Eukaryota: Alveolata: Apicomplexa; Haemosporida; Plasmodium.
1 (bases 1 to 307)
20, X.z. and Wellems, T.E.
Toward a high-resolution Plasmodium falciparum linkage map:
polymorphic markers from hundreds of simple sequence repeats
Genomics 33 (3), 430-444 (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    database_version = 45.0 and updates till date_of_search date_of_search = 08-01-1996 BLAST_program = BLASTX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AF010529 307 bp DNA INV 16
Plasmodium falciparum microsatellite TAl35 sequence.
AF010529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 29; DB 24; Length 156; Pred. No. 1.17e+00; 25; Mismatches 5; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                34 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            237 AGGGGCAGAGCGGAGCCGGGGAAGGGCCAGGCGGCCGGAGT 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20 AGSKSSRRGRRCGRKRRGAGSKSSKSRRGKKCRKSK-RGSSGGAGT 64
/organism="Drosophila melanogaster"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                27 t
                                                                                                                                                                                                                                                                                                                                                                                 vector_class = cosmid, Lorist 6
origin_of_clone = Oregon-R
lin_situ_site_primary = 98C
BLAST_program = BLASTN
database_searched = EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /db_xref="taxon:7227"
/clone="36D7"
37 c 30 q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 database_searched = SWISSPROT
database_version = 32.0
date_of_search = 15-12-1995.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             30 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /strain="Oregon-R
                                                                                                                                                                           fruit fly.
Drosophila melanogaster
                                                                                                                                                                                                                                                                                                                                                                       STS_from_promoter - SP6
                                                                                                                                                            sequence tagged site.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ouery Match 1.4%;
Best Local Similarity 32.6%;
Matches 15; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ø
                                                                                                                             Z70880
g1263754
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               28
                                                              38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 39
                                                                               LOCUS
                                                                                                                                                                          SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                      AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE
```

FEATURES

seconds seconds seconds

15 23 30

KEYWORDS

g Sp SOURCE

TITLE

```
complete cds. AF045766
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Murinae; Mus.
                                                                                                                                             Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                house mouse.
                                                                                                                                 house mouse
                                                                                                                                                                                                                                                                                                         O'Dowd, B.F.
                                                                                                                                                                                                                                                    receptors
                                                                                                   93282841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                            42
                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                       DEFINITION
                                                                                                                                             ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                         TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                    ACCESSION
                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                              MEDLINE
                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                               KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
LOCUS
                            RESULT
                                                                                                                                SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /db_xxef="pid:g388259"
/db_xxef="pid:g388259"
/db_xxef="swiss-prot:p31168"
/translation="nHikattqVikksHifYllyklliksrltwaeevknnvpehetp
/translation="nHikattqVikkseevkpoetttlesefdhkaqisepelarhet
EVKENKITLLEBLOGEKTEDEBRKPSVIEKLHRSNSSSSSSDEGERKEKKKIVE
GEEDKKGLVEKIKEKLPGHHDKTAEDDVPVSTTIPVPVSESVVEHDHPEEEKKGLVEK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IKEKLPGHHDEKAEDSPAVTSTPLVVTEHPVEPTTELPVEHPEEKKGILEKIKEKLPG
                                                                                                                                                                                                                                                                                                                                                                                                                                      Submitted (26-MAY-1991) M.F. Thomashow, Dept. Crop & Soil Science, Dept. of Microbiology, Michigan State University, East Lansing, MI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2 (bases 1 to 1073)
Gilmour,S.J., Artus,N.N. and Thomashow,M.F.
CDNA sequence analysis and expression of two cold-regulated genes
                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cor47 product has homology with group II LEA (late embryogenesos abundant) proteins. Lea proteins are responsive to ABA and water
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                 02-MAR-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                          Charophyta/Embryophyta group; Embryophyta; Magnoliophyta; Magnoliopsida; Capparales; Brassicaceae; Arabidopsis.

1 (bases 1 to 1073)
Thomashow, M.F.
                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                         ABA responsive gene; cold-regulated gene; cor47 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             thale cress.
Arabidopsis thaliana
Eukaryotae; Wiridiplantae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 1073;
                                                                                                Length 400;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 29; DB 19; Length 107
Pred. No. 1.17e+00;
0; Mismatches 10; Indels
                                                                                                Score 28; DB 24; Length 400
Pred. No. 3.33e+00;
0; Mismatches 9; Indels
                                                                                                                                                                        255 ATAIAITITITAAGAGGCIAGAGIGCTITITAGCCTTTTTTAAAA 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="Cold and ABA regulated gene"
                                                                                                                                                                                                                                                 PLN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="Arabidopsis thaliana"
/strain="Columbia"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Plant Mol. Biol. 18 (1), 13-21 (1992)
92119220
                                                      ų
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             244 t
                                                      140
organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /db_xref="taxon:3702"
/clone_lib="lambda ZAP"
/clone="pHH7.2"
                            . 249)
. n g
                                                                                                               Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               YHAKTTEEEVKKEKESDD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           276 g
                                                                                                                                                                                                                                                 RNA
                                                                                                   Score
                         137. .lo.
complement(230. .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             of Arabidopsis thallana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="cor47"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="cor47"
                                                                                                                                                                                                                                        A.thaliana cor47 mRNA.x59814
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 1.4%;
Best Local Similarity 79.6%;
Matches 39; Conservative
                                                                                                Query Match 1.4%;
Best Local Similarity 80.4%;
Matches 37; Conservative
          . .161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             188 c
                                                                                                                                                                                                                                                                                                                                                                                                                             Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ø
                                                       Ø
                                                      106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    stress.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             365
                __mer_bind
primer_bind
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                             g16228
                                                                                                                                                                                                                                                                                                                   SOURCE
                                                                                                                                                                                                                                RESULT 41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                        NID
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                                                                      ò
```

```
ISNGLYLWMLQFKMQRTVNTLLFFHLILSYFISTLILPFMATSFLQDNHWVFGSVLCK
AFNSTLSVSMFASVFFLSAISVARYYLILHPVWSQOHRTPHWASRIALQIWISATILS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IPYLVFRTTHDDHKGRIKCONNYIVSTDWESKEHÖTLGGWIHAACFVGRFLLGFLLFF
LVIIFCYKRVATKMKEKGLFKSSKPFKVMVTAVISFPVCWMPYHVHSGLVLTKSQPLP
LHLTLGLAVVTISFNTVVSPVLYLFTGENFKVFKKSILALFNSTFSDISSTERTQTLN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /db_xref="Pib:93282842"
/translation="MDLINSSTHVINVSTSLINSTGVPTPAPKTIIAASLFWAFIIGV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pharmacology, University of ON M5S 1A8, Canada
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Eutheria; Rodentia; Sciurognathi; Myomorpha; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               02-JUL-1998
                                                                                                                                                                                  Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;
Rodentia; Sciurognathi; Muridae; Murinae; Mus.
1 (bases 1 to 1461)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
AF045766 1461 bp mRNA ROD 02-JUL-199
Mus musculus orphan G protein-coupled receptor (GPR33) mRNA,
                                                                                                                                                                                                                                                                   Marchese, A., Nguyen, T., Mallk, P., Xu, S., Cheng, R., Xie, Z., Heng, H.H., George, S.R., Kolakowski, L.F. Jr. and O'Dowd, B.F. Cloning genes encoding receptors related to chemoattractant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="related to chemoattractant receptors"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="orphan G protein-coupled receptor"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 1461;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 28; DB 22; Le
Pred. No. 3.33e+00;
0; Mismatches 16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Submitted (04-FEB-1998) Department of
Toronto, 8 Taddle Creek Rd., Toronto,
Location/Qualifiers
1.1461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           432 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Patent: DE 3810331-A 3 05-0CT-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="Mus musculus"
/db_xref="taxon:10090"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
1. .1466
/organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                      Genomics 50 (2), 281-286 (1998) 98317543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ...., 1466 bp DNA
M.musculus VAC-alpha cDNA.
A07367
g412270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         274 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="GPR33"
160. .1179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="GPR33"
                                                                                                                                                                                                                                                                                                                                                                                                             (bases 1 to 1461)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Match 1.4%;
Local Similarity 73.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (bases 1 to 1466)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         365 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  44; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Direct Submission
```

26-NOV-1996

CDS

```
IWASAKI AKIO, SUDA MAKOTO
C12N15/12,C07K13/00,C07K13/00,C12N1/19,C12N15/81,C12P21/02, PC
                                                                                                                                                                                                                                                                                                                                                                                                                             PRODUCTION OF CPB-1 AND RECOMBINANT PLASMID AND TRANSFORMED YEAST
                                                                                                                                                                                                                                                                                                   Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                        1 (bases 1 to 1566)
Junji,N., Keishin,S., Yoshinobu,M., Fukusaburo,H., Akio,I.
Makkto,S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C12R1:865), (C12N15/81, C12R1:645, C12R1:19), (C12P21/02,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens (human)
JP 191219875-A/1
27-28P-1991
25-JAN-1990 JP 1990015559
NAKAO JUNJI, SUGAWARA KEISHIN, MIYATSU YOSHINOBU, PI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 1566;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                          1354 ATATATATTTTTAAGAGGCTAGAGTGCTTTTTAGCCTTTTTTAAAA 1399
                                                1354 ATATATTTTTTAAGAGGCTAGAGTGCTTTTAGCCTTTTTAAAA 1399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QY 1794 ATATAAATTTTATAATTGACTTGAGTACTTTAAGCCTTGTTTAAAA 1839

    .135
    .1098
    /product='calphobinding'

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PAT
                                                                                                                                                       PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualiflers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 28; DB 17;
Pred. No. 3.33e+00;
0; Mismatches 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                 USING THEREFOR
Patent: JP 1991219875-A 1 27-SEP-1991;
CHEMO SERO THERAPEUT RES INST, KOWA CO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note='CPB-I'
136. 1095
/product='CPB-I'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       u
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 2 from patent US 5591633. g1824201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Homo sapiens"
/db_xref="taxon:9606"
332 c 357 g 447
                                                                                                                                                    1566 bp RNA calphobindin(CPB-I).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            099. .1431.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    strandedness: Double;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          topology: Linear;
hypothetical: No;
anti-sense: No;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ouery Match 1.4%;
Best Local Similarity 80.4%;
Matches 37; Conservative
                                                                                                                                                                                                             g2171313
JP 1991219875-A/1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mat_peptide
                                                                                                                                                                                                                                                         Homo sapiens.
Homo sapiens
                                                                                                                                                                      DNA encoding
E03096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (C12N1/19,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PC C12R1:
C12R1:865);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5'UTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FUKUSABURO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3'UTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Unknown.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Unknown
                                                                                                                                                  E03096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HELLERECCCC
                                                                                                                                 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              46
                                                                                                                                                                                                                                 KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                          g
                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The entire amino acid sequence of the coagulation inhibitor shows homology to those of lipocortin I, lipocortion II, and endonexinrelated proteins. The deduced amino acid sequence was corroborated by chemical analysis of the protein.

Location/Qualifiers

1. 1566
/organism="homology in a protein in in its conce" location of a protein in its conce" location of a protein in its conce" location of a protein in its conce "pwkT"
// hote="homology in a protein in a protein in its conce" location of a protein in a protein in its conce "pwkT"
// tissue_type="placenta"
// tissue_type="placenta"
                                                           /product="VAC alpha"
//db_xref="PID:9412271"
//db_xref="PID:9412271"
//db_xref="SWISS-PROT:P08758"
//db_xref="SWISS-PROT:P08758"
//translation="MAQVLRGTYDEPGFDERADAETLRKANKGLGTDEESILTLLTS
RSNAOROEISAAFKTLFGRDLLDDLKSELTGKFEKLIVALMKPSRLYDAYELKHALKG
AGTNEKVLTEITASRTPEELARIKOYYEEEVSELDDVWGADTSGYYORMLVVLLQAN
RDPDAGIDEAOVEGDAALFQAGELKWGTDEEKFTIFGTRSVSHLRKVFDYYMTISG
FQIEFTIDREFGSHURDLLLAVYKSIRSIPAYLAETLYYAMKGAGTDDHTLIRVMYSR
SEIDLENIRKEFRKNFATSLYSMIKGDTSGDYKKALLLLCGEDD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product="blood coagulation inhibitor"

/db_xref="PID:g219481"

/translation="MAQVLRGTVTDFPGFDERADAETLRKAMKGLGTDEESILTLLTS

RSNAQRQEIGAAFKTLFGRDLLDDLKSELTGKFEKLIVALMKPSRLYDAYELKHALKG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGTNEKVLTEITASRTPEELRAIKQVYEEEYGSSLEDDVVGDTSGYYQRMLVVLLQAN
PEDPAGIDEAQVEQDAQALEPGAGELKWTDEERTSTTIFGTSVSHLRKYFDKYMTISG
FQIEETIDRETSGNIEGLLLAVVKSIRSIPAYLAETLYYAMKGAGTDDHTLIRVMVSR
SEIDLFVIRKEFRKNFATSLYSMIKGDTSGDYKKALLLLCGEDD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HUMBCI 1566 bp mRNA PRI 13-NOV-1997
Homo sapiens mRNA for blood coagulation inhibitor, complete cds.
D00172
9219480
blood coagulation inhibitor.
Homo sapiens placenta cDNA to mRNA, clone_lib:lambda gtll
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           coagulation isolated from human placenta: a new lipocortin-like
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo Saplens
Eukaryotae; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;
Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 1566)
1 wasaki, A.; Sada, M.; Nakao, H.; Nagoya, T.; Saino, Y.; Arai, K.;
Mizoguchi, T.; Sato, F.; Yoshizaki, H.; Hirata, M.; Miyata, T.;
Shidara, Y.; Murata, M.; and Maki, M.
Structure and expression of cDNA for an inhibitor of blood
Structure and expression of cDNA for an inhibitor of blood
                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 1566;
                                                                                                                                                                                                                                                                                                                      Length 1466;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 28; DB 21; Length 156
Pred. No. 3.33e+00;
0; Mismatches 9; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                             1252 ATATATTTTTTAAGAGGCTAGAGTGCTTTTTAGCCTTTTTAAAA 1297
                                                                                                                                                                                                                                                                                                                  Score 28; DB 17; Pred. No. 3.33e+00; 0; Mismatches 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          J. Biochem. 102 (5), 1261-1273 (1987)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              447 t
/db_xref="taxon:10090"
35. .997
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ס
                                                                                                                                                                                                                                                         327 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /codon_start=1
                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity 80.4%;
Matches 37; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 1.4%;
Best Local Similarity 80.4%;
Matches 37; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   clone:pMKT7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        polyA_signal
```

44

g C ô

BASE COUNT

ORIGIN

DEFINITION

ACCESSION NID KEYWORDS ORGANISM

SOURCE

REFERENCE AUTHORS

TITLE

JOURNAL MEDLINE COMMENT

FEATURES

HAMADA

2

ö

Gaps

ö

22-JAN-1997

BASE COUNT ORIGIN

```
Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                             433 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9182111
                                                                                                                                                                                                                                                                                                                                        variation
                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
TITLE
                                                                                                                                                                    mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                              JOURNAL
                                            MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                CDS
                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
  TITLE
                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOURCE
                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 1575)
Grundmann, U., Abel.K.J. and Kuepper.H.
Production of the anticoapulant protein PP4 by genetic engineering
Batent: EP 0318703-8 6 07-JUN-1989;
BEHRINGWERKE Aktiengesellschaft
Location/Qualifiers
            Saino,Y., Iwasaki,A. and Suda,M.
Nucleic acids encoding human placental coagulation inhibitor (PCI)
Patent: US 5591633-A 2 07-JAN-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 1582)
Grundmann, U., Abel, K.J., Bohn, H., Lobermann, H., Lottspeich, F. and
                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              anticoagulant protein; thromboplastin inhibitor.
Homo sapiens (clone: PP4-[14,20,26,48].) placenta cDNA to mRNA.
Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11-AUG-1995
                                                                                                                                                                                                                                                                                25-JAN-1994
                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HUMPAP4 1582 bp mRNA PRI 11-AUG-1999
Human placenta anticoagulant protein PP4 mRNA, complete cds.
M19384 J03264
                                                                                                                                                                   ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                         Length 1567;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 28; DB 17; Length 1575;
Pred. No. 3.33e+00;
0; Mismatches 9; Indels
                                                                                                                                                                   9; Indels
                                                                                                                                                                                                           1794 ATATAAATTTTATAATTGACTTGAGTACTTTAAGCCTTGTTAAAA 1839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1353 ATATATATITITIAAGAGGCTAGAGTGCTTTTAGCCTTTTTAAAA 1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1324 ATATATATTTTAAGAGGCTAGAGGCTTTTAGCCTTTTTAAAA 1369
                                                                                                                                                                                                                                                                                 PAT
                                                                                                                                      score 28; DB 17; 1 2red. No. 3.33e+00; 0; Mismatches 9

    15.75
    /organism="Homo sapiens"
/db_xref="taxon:9606"

                                                                                                                                        Score 28;
Pred. No. 3
                                                                                /organism="unknown"
332 c 358 g
                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                            A13845 1575 bp
H.sapiens PP4 mRNA.
A13845
G490121
                                                                                                                                        1.4%;
larity 80.4%;
Conservative
 (bases 1 to 1567)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ouery Match
Best Local Similarity 80.4%;
Matches 37; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .1069
                                                                    .1567
                                                                                                                           Ouery Match
Best Local Similarity
                                                                                             430 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Kupper, H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9189614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        461
                                                                                                                                                                                                                                                                                                                                                   human.
                                                                                                                                                                                                                                                                  47
                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                             LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                              BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
              AUTHORS
                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                  KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                           TITLE
                                                                                                                                                                                                                                                                  RESULT
                                                                                                            ORIGIN
                                                                                                                                                                                           g
                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
```

```
/codon_start=1
/product="anticoagulant protein 4"
/product="anticoagulant protein 4"
/db_xref="="plD:g188615"
/translation="kkQVLRGTV"
RSNAQRQEISAAFKTLFGRDLLDDLKSELTGKFEKLIVALMKPSRLYDAYELKHALKG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGTNEKVLTEIIASRTPEELRAIKOVYEEEYGSSLEDDVVGDTSGYYORMLVVLLGAN
PEDPBAGIDEAQVEQDAQALEPGAGELKWGTDEERFFITIFGTRSVSHLRKVFDKYMTISG
FQIEETIDRETSGNEDOLLAAVKSIRSIPAYLAETLYYAMKGAGTDDHTLIRVMVSR
SEIDLFNIRKEFFRKNFATSLYSMIKGDTSGDYKKALLLLCGEDD
Characterization of cDNA encoding human placental anticoagulant protein (PP4): homology with the lipocortin family Proc. Natl. Acad. Sci. U.S.A. 85 (11), 3708-3712 (1988) 88234495
Draft entry and computer-readable sequence for [1] kindly provided
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Draft entry and computer-readable sequence for [1] kindly provided by H.T.Haigler, 06-APR-1988.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata; Vertebrata; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 1592) Kaplan, R., Jaye, M., Burgess, W.H., Schlaepfer, D.D. and Haigler, H.T. Cloning and expression of Conne for and expression of conversion of phospholipid binding protein J. Biol. Chem. 263 (17), 8037-8043 (1988)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ca2+ -dependent phospholipid binding protein; endonexin.
Human placenta, cDNA to mRNA, (library of Clonetech Laboratories
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     07 - NOV - 1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 1582;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1368 ATATATATTTTTAAGAGGCTAGAGTGCTTTTAGCCTTTTTAAAA 1413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="g in PP4-{14,26,48]; c in PP4-20"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 28; DB 21;
Pred. No. 3.33e+00;
0; Mismatches 9
                                                                                                                                                                                               /organism="Homo sapiens"
/db_xref="taxon:9606"
/clone="PP4-[14,20,26,48]."
/tissue_type="placenta"
<1. 1582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HUMENN 1592 bp mRNA
Human endonexin II mRNA, complete cds.
J03745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /db_xref="GDB:G00-120-555"
/db_xref="PID:g182112"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="endonexin II mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1. .1592
/organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                  by U.Grundman, 19-APR-1988.
Location/Qualifiers
1. .1582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="endonexin II"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             82 bp upstream of Smal site.
                                                                                                                                                                                                                                                                                                                                               /note="PP4 mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /map="4q28-q32"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /replace="c"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="ANX5"
160. .1122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        160. .1122
/gene="ANX5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity 80.4%;
Matches 37; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1.48;
                                                                                                                                                                                                                                                                                                                                                                         .1113
```

```
AIGINITERTSNVEVLLOFLEDONTFPNEHLAYWQIOFNNIAAVTVEVWIKLEKFIN
FRITUGDINPAEJERANKULGFLETATVEFWFFILLAWFLAYUDESTFORCIFTO
FRITUGDINPAEJERANKULGFIYFTFYFFWFFILLAWFLAINDTYSEVKSDLAQO
KAEMELSDLIRKGYRKALWKLKKRWTVDDISESLROGGGKLNFDELRODLKGGHTO
AEIEAIFTKYDODGDGELTEHEHQOMRDDLEKEREDLDLDHSSLPRPMSSRSFPRSLD
DASEDDDDEDSOGHSSRRAGSISSGVSYESEFQVLYKVDRMEHSIGSIYGKIDAYIVKLE
IMERAKLKRREVLOGTLLDGYAEDBELGRDSEIHREOMERIYREELERWESDDAASGIS
HGLGTPVGLUGQPRPRSSRPSSSQSTEGMEGAGGNGSSNVHV"
                                                                                                 /codon_start=1
/product="polycystwin"
/product="polycystwin"
/db_xref="plD:q1477692"
/db_xref="plD:q1477692"
/translation="RNGTAMIYTSEKDLNGSSHWGIIATYSGAGYYLDLSRTREETAA
QVASJKKNWWIDNGTRATFIDFSYYMANINLFCVVRLLVEFPATVGVIPSWQEOPLKL
IRYVTTFDFFLAACEIIFCFFIFYYVVEEILEIRIHKLHYFRSFWNCLDVVIVVLSVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /translation="Paavsittggaapsqvsgvmkervlqrsvqlswqepehpngvit
EYEIKHYEKDQRERTYSTLKTKSTSASINNLKPGTVYVFQIRAVTAAGYGNYSPRLDV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Murinae; Mus.

1 (bases I to 2112)

Ellis, J. Liu,O. Breitman,M. Jenkins,N.A., Gilbert,D.J.,
Copeland,N.G., Tempest,H.V., Warren,S., Muir,E., Schilling,H.,
Fletcher,F.A., Ziegler,S.F. and Rogers,J.H.
Embryo brain kinase: a novel gene of the eph/elk receptor tyrosine
Kinase family
Mech. Dev. 52 (2-3), 319-341 (1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Direct Submission
Submitted (07-SEP-1994) J.H. Rogers, University of Cambridge, Dept.
of Physiology, Cambridge CB2 3EG, UK
revised by [3] MAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Eutheria; Rodentia; Sciurognathi; Myomorpha; Muridae;
                /clone_lib-"Soares breast 2NbHBst"

/clone_lib-"Soares breast 2NbHBst"
//note-"candidate for PKD2 (autosomal polycystic kidney
disease type 2) locus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 29; DB 21; Length 2028;
Pred. No. 1.17e+00;
0; Mismatches 15; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             M.musculus mRNA for Ebk receptor tyrosine kinase. X81466 yes g556788 Ebk gene; Embryo Brain Kinase. Musculuse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="Embryo Brain Kinase"
/db_xref="PID:9556789"
                                                                                                                                                                                                                                                                                                                                                                                                        564 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /organism="Mus musculus"
/db_xref="taxon:10090"
/ds_xref="taxon:10090"
/ds_xstage="embryo"
/chromosome="4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          location/Qualiflers
                                                                                                                                                                                                                                                                                                                                                                                                      488 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity 74.6%;
Matches 44; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2 (bases 1 to 2112)
Rogers, J.H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="Ebk"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="Ebk"
/map="4q22"
                                                                                                                                                                                                                                                                                                                                                                                                   387 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1. .2112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                          ๙
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               96081374
                                                                                                                                                                                                                                                                                                                                                                                                        589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REMARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                RSNAQRQEISAAFKTLFGRDLLDDIKSELTGKFEKLIVALMKPSRLYDAYELKHALKG
AGTNEKVLTEILASRTPELLAIKOYVEBEYGSELDDVVGDTGSTYQFMLVVLQAN
RDPDAGIDEAQVEODAALFGAGELKWGTDEEKFTITEGTRSVSHLKKVFDKYMTISG
FOIEETIDRETSGNLEQLLAVVKSIRSIPAYLAETLYYAMKGAGTDDHTLIRVMVSR
SEDLEKNIRKEFRIRFATSLYSMIKGDTSGDYKKALLLLCGEDD"
434 a 337 c 366 g 455 t
284 bp upstream of Hincii site.
/translation="MAQVLRGTVTDFPGFDERADAETLRKAMKGLGTDEESILTLLTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Direct Submission
Submitted (25-APR-1996) Michael C. Schneider, Renal Division,
Brigham and Women's Hospital, 75 Francis Street, Boston, MA 02115,
                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 2028)
Schneider,M.C., Rodriguez,A.M., Nomura,H., Zhou,J., Morton,C.C.,
Reeders,S.T. and Weremowicz,S.
A gene similar to PKDI maps to chromosome 4q22: a candidate gene
for PKD2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15-JAN-1997
                                                                                                                                                                                                                                                                                                                                                                                   14-NOV-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 28; DB 17; Length 1605;
Pred. No. 3.33e+00;
0; Mismatches 9; Indels
                                                                                                                                                                                Length 1592;
                                                                                                                                                                                                                                                           9; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1378 ATATATTTTTAAGAGGCTAGAGTGCTTTTTAGCCTTTTTAAAA 1423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRI
                                                                                                                                                                            Query Match 1.4%; Score 28; DB 20; I Best Local Similarity 80.4%; Pred. No. 3.33e+00; Matches 37; Conservative 0; Mismatches 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (bases 1 to 1605)

Kaplan, R. and Jaye, M.
Recombinant endonexin II
Patent: EP 0339285-A2 12 02-NOV-1989;
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HSU56813 2028 bp mRNA
Human polycystwin mRNA, partial cds.
U56813
                                                                                                                                                                                                                                                                                                                                                                               1605 bp
from Patent EP 0339285.

    2028
    organism="Homo sapiens"
    db_xref="taxon:9606"
    /chromosome="4"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="unknown"
338 c 365 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Genomics 38 (1), 1-4 (1996)
97124839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity 80.4%;
Matches 37; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2 (bases 1 to 2028)
Schneider, M.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .1605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 12 f
IO7181
g589893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       447 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g1477691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unknown.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Unknown
                                                                                                                                                                                                                                                                                                                                                                                 107181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        human.
                                                                                                                                                                                                                                                                                                                                                                                 LOCUS
DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                    BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                      ORIGIN
                                                                                                                                                                                                                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
```

ö

ö

26-APR-1996

g ò 음 ò

```
VMITTERSTORM TO THE TABLE OF THE TOTAL OF THE TABLE OF TH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product="transmembrane receptor"
/db_xref="plD:g1151258"
/translation="MRGPGTAASHSPLGLCALVLALLGALPTDTRAQPYHGEKGISVP
DHGFCQPISIPACTDIAYNQTILPNILGHTNQBDAGLEVHQFYPLVKYQCSPELRFFL
CSMYAPVCTVLDQAIPPCRSLCERARQGCEALMNKFGFQWPERLRCENFPVHGAGEIC
                                     EGDEELYFHFKFPGTKTYIDPETYEDPNRAVHQFAKELDASCIKIERVIGAGEFGEVC
SGRLKLPGKRDVAVAIKTLKVGYTEKQRRDFLCEASIMGQFDHPNVVHLEGVVTRGKP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VGQNTSDGSGGAGGSPTAYPTAPYLPDPPFTAMSPSDGRGRLSFPFSCPRQLKVPPYL
GYRFLGERDCGAPCEPGRANGLMYFKEEERRFARLWVGVWSVLSCASTLFTVLTYLVD
MRRFSYPERPIIFLSGCYFWVAVAHVAGFLLEDRAVCVERFSDDGYRTVAQGTKKEGC
ATLEEASGKMFEATAVSSEQNPVIIIAVVAVAGTIILVFMVFGFIIGRRHCGYSKADQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TILEWVLYFFGMASSIWWVILSLTWFLAAGMKWGHEAIEANSQYFHLAAWAVPAVKTI
TILAMGQVDGDLLSGVCYVGLSSVDALRGFVLAPLFVYLFIGTSFLLAGFVSLFRIRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Eutheria; Rodentia; Sciurognathi; Myomorpha; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ဌ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TATATITGTCAAATAAAAATCAIGATCTIAITGTTAAAATCAATGAAATATITTCCTTAA 2093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1945 TARATATITCAGATARACATIATATICTTGTATATARAACTITACATCCTGTTTTACCTAA 2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MMU43320 2260 bp mRNA ROD 24-FEB-1996
Mus musculus putative transmembrane receptor (frizzled 7) mRNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 (bases 1 to 2260)
Wang, Y., Macke, J.P., Abella, B.S., Andreasson, K., Worley, P., Gilbert, D.J., Copeland, N.G., Jenkins, N.A. and Nathans, J.
A large family of putative transmembrane receptors homologous the product of the Drosophila tissue polarity gene frizzled J. Biol. Chem. 271 (8), 4468-4476 (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Abella, B., Wang, Y., Macke, J.P. and Nathans, J.
Direct Submission
Submitted (14-DEC-1995) Jeremy Nathans, Wolecular Biology and
Genetics, Johns Hopkins Medical School, 725 N. Wolfe Street,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 2112;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Mismatches 23; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="putative transmembrane receptor"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 22;
1.17e+00;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Mus musculus"
/db_xref="taxon:10090"
/chromosome="2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 29;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                          б
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="frizzled 7" 362. 2080 /gene="frizzled 7"
                                                                                                                                                                                                                                                                                                                                                                                                      519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /map="2q33-34"
362. .2080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                                                                                                                                                          . .2050
439 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 1.4%;
Best Local Similarity 69.3%;
Matches 52; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Baltimore, MD 21205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2094 AAAAAAAAAAAA 2108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2005 AAAAAAAAAAAA 2019
                                                                                                                                                                                                                                                                                                                                                                2045.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complete cds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mus musculus
                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                          ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 91151257
                                                                                                                                                                                                                                                                                     polyA_signal
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               U43320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2034
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
```

```
IMKHDGTKTEKLEKLMVRIGVFSVLYTVPATIVLACYFYBQAFREHWERTWLLQTCKS
YAVPCPPRHFSPMSPDFTVFMIKYLMTMIVGITTGFWIWSGKTLQSWRRFYHRLSHSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               represent the correct sequence. Work on the sequence is in progress and the release of this data is based on the understanding that the sequence may change as work continues. The sequence may be contaminated with foreign sequence from E.coli, yeast, vector,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Submitted (06-DEC-1997) P.falciparum Genome Sequencing Consortium, The Sanger Centre, Wellcome Trust Genome Campus, Hinxton, Cambridge
                                                                                                                                                          ñ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       phage etc.
For more information about this sequence or the Malaria Project, see http://www.sanger.ac.uk/Projects/P_falciparum.
Location/Qualifiers
1. .4798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This sequence is unfinished and does not necessarily
                                                                                                                                                                                              560 CTGCCCAACCTGCTGGGCCACACGAACCAAGAGGACGCGGGGCCTCGAGGTGCACCAGTTC 619
                                                                                                                                                                                                                                                                          619
                                                                                                                                                                                                                                                                                                                                                    680 GCACCCGTGTGCACCG-TG--CTCGACCAAGCCATTCCTCCGTGCCGTTCCTTGTGCGAG 736
                                                                                                                                                                                                                                    433 CTGCCCAACCTGCTGGGCCACGAGACCATGAAGGAGGTGCTGGAGCAGGCCGGCGCTTGG 492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 55
LOCUS PFSC04015 7964 bp DNA INV 27-JUN-1998
LOCUS PISSMOdium falciparum DNA *** SEQUENCING IN PROGRESS *** from contig 4-15, complete sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        plasmodium falciparum DNA *** SEQUENCING IN PROGRESS *** from AL010253
                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryotae; Alveolata; Apicomplexa; Haemosporida; Plasmodium.

    (bases 1 to 4798)

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              493 ATCCCGCTGGTCATGAAGCAGTGCCACCCGGACACCAAGAAGTTCCTGTGCTCGTCTTC
                                                                                                                                                                                                                                                                                                                                                                                          553 GCCCCCGTCTGCCTCGATGACCTAGACGAGACCATCCAGCCATGCCACTCGCTCTGCGTG
                                                                                                                                                                                                                                                                          620 TACCCTCTGGTAAAGGTGCAGTGTTCTCCTGAGCTACGCTTCTTCTTATGCTCTTATGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                    613 CAGGTGAAGGACCGCTGCGCCCCGGTCATGTCCGCCTTCGGCTTCCCCTGGCCCGA 668
                                                                                                                                                                                                                                                                                                                                                                                                                              737 CGCGCCCGACAGGGCTGCGAGGCGCTCATGAACAAGTTCGGCTTCCAGTGGCCAGA 792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          466 ITITITITITITITITITGAAATAACGGATTATTAAGATGATATATAAAATATAAT
                                                                                                                                                          ë
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                  Length 2260;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 4798;
                                                            others
                                                                                                                                                        0; Mismatches 93; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Mismatches 14; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Plasmodium falciparum"
/db_xref="taxon:5833"
/chromosome="4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 29; DB 14;
Pred. No. 1.17e+00;
                                                                                                                  Score 29; DB 22;
Pred. No. 1.17e+00;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2071 t
                                                          481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ь
                                                              ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       459
                                                          677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /clone="4-76"
483 c 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Plasmodium falciparum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1.4%;
larity 75.4%;
Conservative
                                                                                                                  ch 1.4%;
l Similarity 59.3%;
140; Conservative
                                                            U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Direct Submission
                                                          739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       malaría parasite.
                                      KGETAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CB10 1SA, UK
                                                                                                                  Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best_Local Similarity
Matches 43; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IMPORTANT:
                                                              ಥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ŋ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               92673812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Lawson, D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                        BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                                                              ద
                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                                                                            δy
                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                              엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Сp
```

```
ASSQLIISASSCSQKBKDIELSSILSENAVLATNSLKUIIKTTSSAMPGVNFCEEAIE
TQRALISDSSAVLSVALGYDSSANKEGLSHVESGERLVUVTKKIGTGINDLLKAS
RQSPEAIGISSAKALSTAPSLAPADADAONDLYTESKNVGDSILKLCOA
SLIASSNPSKETYQITVKCVDASEAASKLYAQISSGVNLYKELDESLDRIRKSVVQ
SAKDAPKDSDNRGYOEYKEELSNLTKNLALSLKTIVATDGNNLVSTSKANSGAKVVNDS
YRATHVSSALIATTSDQKIRDSIITSSRQVIVCTGADIVNHIKVNSTDKANSGAKVNDS
YRATNDINTFRLQSLKGALGELSDAAIDOIRKVISDGAAGOLENDOSSG
STANNEVTKQQHLKNLQKOTITQAKLLIVSSSQLVGSSRGTGEHLGSATTKVANTVSSL
YRATAIDIATSQODILASRAALSSQONLATRADGARRATARRATRIGKSA
ERVAEDVGPFLTSVTAISSDAGKGTKELEKSIVQVANYHRKPDTVLSNRDATRREIFKA
SRANDLAKSSIEIVTSYTAISDAGKGTKELEKSIVQVANYHRKPDTVLSNRDATRREIFKA
                                           GLYQAHTEGKOSARWLAMEKTLOFYDINSDQQLDYKKKHRPORFKLLDGTIKTQLVDE
SQNVSEIVNSICKKMGIKNPEEYSLMNSAGAWLNNTQILSEQGISENDITVLMKKFFF
NDANIDRNDPVQLHLLFYQCRDGIIEGKYPTQREESLALSALQCOVQLGDYNPTKHEP
GFLTLKDYLPLQWLKSKGVEKDITEGKKLVSMTEVNAKYRYQLCRSLKTYGHTSFD
VKIREYGKKKMYDHILGITREDQHLLMTFETKEVIMTHPLKHIRWAAPUPKSFTLDFGD
HETEXLILQIPNPEQISQLIGGYIEIIMKARKDSSKVIEKEDTAMGVEEVMAVKKGSV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LENVKQTTGDMLALLQCVKDQDKNGSTSIADATRSISDCVHSVVTLSKSLPGGQNIVV
EEDNVLEDLEALAEDELSACARSIEEATAKLIAARPQSKSKNGKLDAEGVAATIVDAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAMKSATGKAEEEELIATARSVAAATALLVSASRAKSGDDYQSQAAHSHLSTAARQVA
SATSDLVAAAKAATIFDEQQQEEEQEQFNFTGSKVKELEQQMKILKLEKELETARRQM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SAIAKAVAKLVNSAAVAOSKRREDOIASGSVYKADPTWSNGLISAAKGVGAATHRLVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eubacteria; Proteobacteria; gamma subdivision; Enterobacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1947 AATATTTCAGATAAACATTATATATTCTTGTATATAAAACTTTACATCCTGTTTTACCTAAAA 2006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ECAECO00479 10934 bp DNA BCT 02-SEP-1997
Escherichia coli K-12 MG1655 section 369 of 400 of the complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 29; DB 14; Length 859
Pred. No. 1.17e+00;
0; Mismatches 22; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ტ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (bases 1 to 10934)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LNSRKQNYNKN'
1415 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity 69.9%;
Matches 51; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Escherichia coli.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2007 AAAAAAAAAA 2019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       genome.
AE000479 U00096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Escherichta.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       905 AAAAAAAAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                92367340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                   Direct Submission
Submitted (25-JUN-1998) P.falciparum Genome Sequencing Consortium,
Submitted (25-JUN-1998) P.falciparum Genome Sequencing Consortium,
The Sanger Centre, Wellcome Trust Genome Campus, Hinxton, Cambridge
CB10 1SA, UK
IMPORTANT: This sequence is unfinished and does not necessarily
represent the correct sequence. Work on the sequence is in progress
and the release of this data is based on the understanding that the
conteminated with foreign sequence from E.coli, yeast, vector,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Dictyostellum.

1 (bases I to 8595)

1 (bases I to 8595)

A talin homologue of Dictyostellum rapidly assembles at the leading edge of cells in response to chemoattractant

95213284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Direct Submission
Submitted (09-SEP-1994) Max Planck Institute for Biochemistry, Am
Klopferspitz 18A, 82152 Martinsried, Germany
Location/Qualifiers
1. 8595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note-"homolog of mouse talin, GenBank Accession Number
                                                                                                                                                                                                                                                                                                                                                                                                  more information about this sequence or the Malaria Project, http://www.sanger.ac.uk/Projects/P_falciparum.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    X56123 and other proteins of the band 4.1 superfamily; submembranous protrusions; cytoplasma" /codon_start=1 /codon_start=1 /coton_start=1 /product="cytoskeletal linker; actin-binding" /product="filopodin"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           06-MAY-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DDU14576 8595 bp DNA INV 06-MAY-199:
Dictyostelium discoideum filopodin (talA) gene, complete cds
U14576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2019 ITITITITITITITITITAGGTAAAACAGGATGTAAAGTTTATATACAAGAATATAAT 1963
                                                                                                             Eukaryota; Alveolata; Apicomplexa; Haemosporida; Plasmodium.
1 (bases 1 to 7964)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3632 ITTTTTTTTTTTTTTTTGAAATAACGGATTATTAAGATGATATATAAAATATAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Dictyostelium discoideum.
Dictyostelium discoideum
Eukaryotae; mitochondrial eukaryotes; Dictyostellida;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 7964;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 29; DB 14; Length 7964
Pred. No. 1.17e+00;
0; Mismatches 14; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         join(927. .1317,1435. .1708,1782. .8592)
/gene="talA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Dictyostelium discoideum"
/db_xref="taxon:44689"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             falciparum"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3082 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Plasmodium
/db_xref="taxon:5833"
/chromosome="4"
/clone="4-15"
                                                                 malaria parasite P. falciparum.
Plasmodium falciparum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 868 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2 (bases 1 to 8595)
Mueller-Taubenberger, A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1. .8595
/gene="talA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity 75.4%;
Matches 43; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               720 C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              phage etc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ø
AL010221
93273115
HTG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9797298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BASE COUNT
                                                                                                                                                                               TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
    ACCESSION
                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE
                                           KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                     COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
                                                                 SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOURCE
```

c_p g

ö

ö

Length 8595;

```
/db_xref="PID:g2367342"
/translation="MYTSELLOYCMAKPGAEGSVHNDWKATQIKVEDVLFAMVKEVEN
RPAVSLKTSPELAELLRQQHSDVRPSRHLNKAHWSTVYLDGSLPDSQIYYLVDASYQQ
AVNLLPEEKRKLLVQL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="excision nuclease"
/db_xref="PID:92367343"
/db_xref="PID:92367343"
/translation="MDKIEVEGARTHNLKNINLVIPRDKLIVVTGLSGSGKSSLAFDT
LYAEGORRYYESLSAYARQFLSLMEKPDVDHIEGLSPAISIEDKSTSHNPRSTVGTIT
EIHDYLRLLFARVGEPRCPDHDVPLAAQTVSQMVDNVLSQPEGKRLMLLAPIIKERKG
EHTKTLENLASGGYIRARIDGEVOLDSPPRLEDGKHTIETVVDRRFYRDDLTQRLAF
ESFETALELGSGGTAVADMUDPKAELLFSANFACTGSSKRELEFRLFSFNNPAGA
CPTCDGLGVQQYFDDDRVIQNPELSLAGGAIRGWDRNFYYFQMLKSLADHYKFDVEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /translation="www.oktitlesaksrgfhlytdelingladmprvniglihlilioh
TSASLTLNENCDPTVRHDMERFFLRTVPDNGNYEHDYEGADDMPSHIKSSMLGTSLVL
PVHKGRIQTGTWQGIWLGEHRIHGGSRRIIATLQGE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PWGSLSANVHKVVLYGSGKENIEFKYMNDRGDTSIRRHPFEGVLHNMERRYKETESSA
VREELAKFISONRPCASCEGTRLRREDRHYVVENTPLPAISDMSIGHAMEFRNUKLAG
QRAKIAEKILKEIGDRKKFLYNVGLMYLTLSRSAFTLSGGERQRIRLASQIGAGLVGV
MYVLDEPSIGLHQRDNERLLGTLIHLRDLGNTVIVVEHDEDAIRAADHYLDIGBGRGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HGGEVVAEGPLEAIMAVPESLTGQYMSGKRKIEVPKKRVPANPEKVLKLTGARGNNLK
DVTLTLPVGLFTCITGVSGSGKSTLINDTLFPIAQRQLNGATIAEPAPYRDIQGLEHF
DKVIDIDQSPIGRTPRSNPATYTGVFTPVRELFAGVPESRARGYTPGRFSFNVRGGRC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FFDAVPALARKLQTLMDVGLTYIRLGQSATTLSGGEAQRVKLARELSKRGTGQTLYIL
DEPTTGLHPADIQQLLDVLHKIRDQGNTIVVIEHNLDVIKTADWIVDLGPEGGSGGGE
ILVSGTPETVAECEASHTARFLKPML"
5104...5640
79ene".ssb"
5104...5640
/gene".ssb"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /product="single-strand DNA-binding protein"
/db_xref="PID:g1790494"
//tb_xref="PID:g1790494"
/translation="MASRGVNKVILVGNLGQDPEVRYMPNGGAVANITLATSESWRDK
/translation="MASRGVNKVILVGNLGQDPEVRYMPNGGAVANITLATSESWRDK
/translation="MASRGVNKVILVGNLGQDPEVRYMPNGGAVARVITEV
VVNVGGTMQMLGGRQGGAPAGGNIGGGQPQGGWGQPQQGGNQFSGGAQSRPQQSA
       NMNPVIFAGDKPGQNTKSQWLQDKNIRIFYGDSDNDITAARDVGARGIRILRASNSTY
KPLPQAGAFGEEVIVNSEY"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EACQGDGVIKVEMHFLPDIYVPCDQCKGKRYNRETLEIKYKGKTIHEVLDMTIEEARE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="yjbR"
/note="0118: 100 pct identical amino acid sequence and
equal length to YJBR_ECOLI SW: P32699"
/codon_start=1
/transl_table=11
/label=b4057
                                                                                                                                                                                   /gene="yjbQ"
/note="0138: 100 pct identical amino acid sequence and
equal length to YJBQ_ECOLI SW: P32698"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="0940; 99 pct identical amino acid sequence and equal length to UVRA_ECOLI SW: P07671; CG Site No. 21"
                                                                                                                                                                                                                                                                                                                                                                                                         /product="hypothetical 15.7 kD protein in tyrB-uvrA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /product-"hypothetical 13.4 kD protein in tyrB-uvrA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="o178; CG Site No. 150"
                                                                                                                                                                                                                                                                                                                                                                                                                                              intergenic region"
/db_xref="PID:g1790491"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(2028. .4850)
/gene="uvrA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement(2028. .4850)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  intergenic region'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /transl_table=11
/label=b4058
                                                                                                                                                                                                                                                                                                                                  /transl_table=11
/label=b4056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /transl_table=11
/label=b4059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'gene-"uvrA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="yjbk"
1637. .1993
                                                                                                            /gene="yjb0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ober 26.7 45.9

The E. coli K-12 sequence and its annotations have been updated.
All of the ambiguous residues in our original submission have been resolved, and mais-assemblies in two repetitive regions have been realigned. The annotations have been improved and updated as well.
With this release we begin designating a version number for the annotated sequence, to assist in keeping track of corrections, updates, and other changes. This is version M52 (SEPT. 02, 1997). In addition, a revised notation has been instituted which assigns each gene (protein- or RNA-encoding) a unique numeric identifier beginning with a lowercase 'b' (in the 'label' field); this will remain constant through further updates, gene identifications, etc.
This sequence was determined by the E. coli Genome Project at the University of Wisconsin-Madison (Frederick R. Blattner, director). Supported by NIH grants HG00301 and HG01428 (from the Human Genome Project and NCHGR). The entire sequence was independently determined from E. coli K-12 strain MG1655.

Fredicted open reading frames were determined using Genemark software, kindly supplied by Mark Borodovsky, Georgia Institute of Technology, Atlanta, GA, 30332.
Fredicted open reading frames were determined using Genemark software, kindly supplied by Mark Borodovsky, Georgia Institute of Hernalis mark@amber.gatech.edu open reading frames were CGSC) database at Yale University, kindly supplied by Mary Berlyn. A public version of the database is accessible (http://cgsc.bology.yale.edu).
Annotation of the genome is an ongoing task whose goal is to make the genome sequence more useful by correlating it with other date.
Comments to the authors are appreciated updated information will be available at the E. coli Genome Project's World wide Web site (http://www.genetics.wisc.edu).

State All of the genome Project's World wide web site the state of the genome project's World wide web site the state of the genome project's World wide web site the state of the genome project's World wide web site the 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  intergenic region"
/db_xref="PID:92367341"
/db_xref="PID:92367341"
/translation="MRKINGALSAVCLLFALNSSAVALASSPSPLNPGTNVARLAEGA
PIHWYSVAQIENSLAGREPMAVGEDIDDTVLFSSPGFWRGKKTFSPESEDYLKNPVFW
EKMNNGWDEFSIPKEVARQLIDMHVRRGDAIFFVTGRSPTKTETVSKTLADNFHIPAT
Blattner, F.R., Plunkett III, G., Bloch, C.A., Perna, N.T., Burland, V., Riley, M., Collado-Vides, J., Glasner, J.D., Rode, C.K., Mayhew, G.F., Gregor, J., Davis, N.W., Kirkpatrick, H.A., Goeden, M.A., Rose, D.J., Mau, B. and Shao, Y.
                                                                                                                                                                                                                                                                                                                                                    Submitted (16-JAM-1997) Guy Plunkett III, Laboratory of Genetics, University of Wisconsin, 445 Henry Mall, Madison, WI 53706, USA. Email: ecoli@genetics.wisc.edu Phone: 608-262-2534 Fax:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Submitted (02-SEP-1997) Guy Plunkett III, Laboratory of Genetics, University of Wisconsin, 445 Henry Mall, Madison, WI 53706, USA. Email: ecoli@genetics.wisc.edu Phone: 608-262-2534 Fax:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="0237; sequence change joins two ORFs relative to earlier version; 99.2 pct identical to to the conceptual ORF YJBP_ECOLI SW: P32697"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="hypothetical 26.1 kD protein in tyrB-uvrA
                                                                                                                                              The complete genome sequence of Escherichia coli K-12 Science 277 (5331), 1453-1474 (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Escherichia coli"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /sub_strain="MG1655"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /db_xref="taxon:562"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="yjbP"
393. .1106
/gene="yjbP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /strain="K-12
                                                                                                                                                                                                                                                   (bases 1 to 10934)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (bases 1 to 10934)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .1106
                                                                                                                                                                                                                                                                                                                                  Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Direct Submission
                                                                                                                                                                                                                                                                                            Blattner, F.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   lattner, F.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         608-263-7459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    508-263-7459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                              MEDLINE
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
TITLE
JOURNAL
   AUTHORS
                                                                                                                                              TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
```

```
/pcoduct="neoxanthin cleavage enzyme - like protein"
/db_xref="PlD:e1249600"
/db_xref="PlD:e1249600"
/db_xref="PlD:e1249600"
/db_xref="PlD:e1249800"
/db_xref="PlD:e1249800"
/db_xref="PlD:e1249800"
/translation="WYSLITMPMSGGIKTWPDADIGFRPIKROPKVIKCTVOIDVI
ELTKKRQLFPRTTATPPDQHNPLRLNIFQKAAAIAIDAAERALISHEODSPLPKTADP
RVOIAGNYSPVPESSYRRNITVOGRIPPCOTOGVYIRVANPMPEFTAGHILFDGDGMV
HAVKITNGSASYACRFTKTERLYQKRLGRPVPFRAIGELHGHSGIARLMLFYARGLC
GLINNONGVANNGLVFRKIENRRLAMSEDDLPYQLKTTOTGDLGTYGRYDFDGGCKSA
MIAHPKLDPVTKELHALSYDVVKKPYLKYFRFSPDGVKSPELFLFPTMIHDFAIT
ENFVVIPDQQVYFKLGEMISGKSPVVFDGERVSFRLSHRYTRRSLL
FHLWNAWSSPETEEIVVIGSCMSPADSIFRPREDESLRSVLSEIRINLGTRKTRRSLL
VNEDVNLETGEMVNRRLGERTRFRAFLAIAYPWPKYSGFAKVDLCTGEMKKYIYGGERY
GGEPFFLPGNSGNGEBNEEDDGYIFCHVHDEETKTSELQIINAVNLKLEATIKLPSHVF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(join(3457. .5645,5970. .6074,6165. .6265,6367. .6436,6535. .6597,6677. .6743,6822. .6946,7021. .7nnn.7188. .7472,7566. .7702))
//note-"strong similarity (S)-2-hydroxy-acid oxidase (EC 11.1.3.15), peroxisomal, Spinacia oleracea (spinach), PIRI:OXSPH; contains EST 9b:T88637, N37256"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
/product="glycolate oxidase - like protein"
/db_xref="PlD:e1249601"
/db_xref="PlD:e2832641"
/db_xref="PlD:g2832641"
/db_xref="PlD:g2832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MTLSSWATCSVEEVASTGPGIRFFQLYVYKDRNVVIQLVKRAEEAGFKAIALTVDTPR
LGRRESDINKRFALPRGLTLKNFFGLDLGKIDKTNDSGLASVYAGVDGSLSWKDIKW
LOSITSLPILVKGYTABARIAVEGAAGIIVSNHGARQLDYVPAITYALEEVVKAV
EGRIPYFLDGGVRRGTDVFKALALGASGVFYGRPSLFSLAADGEAGVRKMLQMLRDEF
Duesterhoeft, A., Bancroft, I., Mewes, H.W., Mayer, K. and Schueller, C.
                                                                                                                                           Direct Submission
Submitted (03-FEB-1998) MIPS, at the Max-Planck-Institut fuer
Submitted (03-FEB-1998) MIPS, at the Max-Planck-Institut fuer
Biochemie, Am Klopferspitz 18a, D-82152 Martinsried, FRG, Project
Coordinator: Mike Bevan, Molecular Genetics Department, Cambridge
Laboratory, John Innes Centre, Colney Lane, NR4 7UJ Norwich, UK,
E-mail: michael.bevan@bbsrc.ac.uk
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="strong similarity to neoxanthin cleavage enzyme, Lycopersicon esculentum, PATCHX:E325797; and viviparous-14, Zea mays, PATCHX:G2232017" /codon_start.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ELTMALSGCRSLREISRTHIKTDWDTPHYLSAKL"
                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Arabidopsis thallana"
/variety="Columbia"
/db_xref="taxon:3702"
/chromosome="4"
                                                                                                            sequencing, project.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /gene="F28J12.20"
/number=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /gene="F28J12.20"
/number=^
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement(6075. .6164)
/gene="F28J12.20"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(5460. .5645)
/gene="F28J12.20"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /number=2
complement(6165. .6265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               YGFHGTFVDSNELVDQL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1988. 3739
/gene="F28J12.10"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1988. .3739
/gene="F28J12.10"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5460. .7702
/gene="F28J12.20"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1988. .3739
/gene="F28J12.10"
                                                                     2 (bases 1 to 110102)
EU Arabidopsis sequenci
                                                                                                                                                                                                                                                                                                                                                                                                                   1. .110102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'number≖1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'number-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1988.
                                      Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  intron
                                                                         REFERENCE
AUTHORS
                                                                                                                                                   TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   exon
                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                              /db_xref="PID:g1790495"
/translation="WYHASREORRAVOGIGSFORNCLWATL/TGVVLLRWQLLSAVMM
FLASTLNIRFRRSDYVGLAVISSGLGVVSACWFAMGLLGITMADITAIWHNIESVMIE
EMNQTPPQWPMILT"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FWSEVMSDDPTLQWGYYDTYTKTFFSLSKEASAATFSPLIHLKDLTYQRNGYYZATYY
STRRPIAAIVATSYQRLITHFYNHLIFALPAGILGSLYLLLLMLRIRONYLSPKRKLQ
RALEKHQLCYYQPIIOTYREKCIGAEALLRWBCGGGO,MNPAEBIPLAEKEGMIEQI
TDYYLDNYFRDLGATATHADRYYSINLSASDFHTSRLIARINGKTEGYANPRQIKE
EVTEHAPLDVDKMTPILLAFRQAGYEVAIDDFGIGYSNLHNLKELNVDILKIDKSFVE
TLTTHKTSHLIAEHIIELAHSLGLKTIAEGVSTEEQVNWLRKRGVRYCQGWFFAKAMP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /db_xief="PID;g1790496"
/translation="MSHRARHQLLALPGIIFLVLFPIILSLWIAFLWAKSEVNNQLRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FAQLALDKSELVIRQADLVSDAAERYQGQVCTPAHQKRMLNIIRGYLYINELIYARDN
HFLCSSLIAPVNGYTIAPADYKREPNVSIYYYRDTPFFSGYKMTYMQRGNYVAVINPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="vjcc"
6450. 8036
6450. 8036
/gene="vjcc"
/note="o528; 100 pct identical to VJCC_ECOLI SW: P32701;
similar to Azorhizobium caulinodans hypoth. protein, ntrc
3' region"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      thale cress.
Arabidopsis thaliana
Bukaryotae; Viridiplantae; Charophyta/Embryophyta group;
Embryophyta; Tracheophyta; seed plants; Magnoliophyta;
eudicotyledons; Rosidae; Capparales; Brassicaceae; Arabidopsis.
1 (bases 1 to 110102)
Bevan,M., Hilbert,H., Braun,M., Holzer,E., Brandt,A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AFF28J12 110102 bp DNA PLN 03-FEB-1998 Arabidopsis thaliana DNA chromosome 4, BAC clone F28J12 (ESSAII project).
AL021710
                                                                                                                                                   /gene="YjcB"
/note="fil6; 100 pct identical amino acid sequence and
equal length to YJCB_ECOLI SW: P32700"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3127 CCTTCTGCGACCACTTCACCGCGGTGAACACCTGCGCCCGGGCCAATGTCGATCACATGG 3186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1090 CCTTCTGCCACCGCTTCACCGAGGTGATCACCAGCTCCCCACCCTGTTTCTGTCCCCAGA 1031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'product - "hypothetical 60.8 kD protein in ssb-soxs
                                                                                                                                                                                                                                                                                                                                                                        'product="hypothetical 13.0 kD protein in ssb-soxs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1.4%; Score 28; DB 12; Length 10934;
larity 71.9%; Pred. No. 3.33e+00;
Conservative 0; Mismatches 18; Indels 0;
                               complement(5739. .6089)
                                                                                                        complement(5739. .6089)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement(8039. .8362)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(8039. .8362)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               POVEMOWMEQLPARELTRGQ
PAAPSNEPPMDFDDDIPF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Note: remainder of annotations omitted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                intergenic region"
                                                                                                                                                                                                                                                                                                                                                                                                               intergenic region
                                                                                                                                                                                                                                                                                              /transl_table=11
/label=b4060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
/transl_table=11
/label=b4061
                                                                                                                                                                                                                                                           /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="soxs"
                                                                         ′gene="yjcB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity
Matches 46; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                92832639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3187 TCAG 3190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1030 CCAG 1027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
```

g S g

```
ESVKQALFAVSAIMYKINPRENIPLDSTSQDVPAASVIVPSDLSNSVYPQTGFYSNQD
HILOQQSACYPSYFNALSVSDFOGYAETAANPYPVBASSLPYTHGFGGSSRSEELVFKV
LCPLCALONANYGKGGSTIKRIREASGSCIEVUDSRTKCGDDECVIIVTATEILFCLS
TPPYFMGSPDDMKSAVEAVLLLQFYINDEDAENVKMQLLVSSKVIGCVIGKSGSVIN
EIRKRINANICISKCKKDDLVEVSGFYSSVRDALIQIVLRLREDVLGDKDSVATRKPP
ARTDNCSFLSGSSNAGYTLPSFMSSMASTSGFHGYGSFPVKSCILDFH"
                    LLVPFSOSSSLIGKAGENIKRIRRRTRASVKVVSKDVSDPSHVCAMEYDNVVVISGEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       l (bases 1 to 115641)
Vysotckata V.S., Fohwattz,J.R., Toriumi,M., Kwan,A., Yu,G., Oji,O.,
Liu,S., Li,J., Araujo,R., Au,M., Brendel,V., Buehler,E.,
Conway,A.B., Conway,A.B., Dewar,K., Feng,J., Kim,C., Kurtz,D.,
Li,Y., Palm,C.J., Shinn,P., Sun,H., Davis,R.W., Ecker,J.R.,
Federspiel,N.A. and Theologis,A.
Arabidopsis thaliana chromosome 1 BAC F8K4 sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      thale cress.
Arabidopsis thaliana
Eukaryota; Viridiplantae; Charophyta/Embryophyta group;
Embryophyta; Tracheophyta; euphyllophytes; Spermatophyta;
Magnoliophyta; eudicotyledons; Rosidae; Capparales; Brassicaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        F8K4 115641 bp DNA PLN 04-AUG-1998
Arabidopsis thaliana chromosome 1 BAC F8K4 sequence, complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 28; DB 19; Length 110102;
Pred. No. 3.33e+00;
0; Mismatches 12; Indels 0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Db 72216 IIIIIIIIIIIIIIII 72267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Cp 2019 TITITITITITITITAGGAAAACAGGATGAAAGTITATATACAAGAAI 1968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       \ldots
                                                                                                                                                         8839. .8912
/gene="F28J12.30"
                                                                                                                                                                                                                  8913. .9050
/gene="F28J12.30"
                                                                                                                                                                                                                                                                                                                                    9136. .9198
/gene="F28J12.30"
                                                                                                                                                                                                                                                                                                                                                                                                                                                       9284. .9373
/gene="F28J12.30"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /number=4
9374. .9449
/gene="F28J12.30"
                                                                                                                                                                                                                                                                           9051. .9135
/gene="F28J12.30"
                                                                                                                                                                                                                                                                                                                                                                                              9199. .9283
/gene="F28J12.30"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9450. .9572
/gene="F28J12.30"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9573. .9667
/gene="F28J12.30"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9668. .9755
/gene="F28J12.30"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9756. .10088
/gene="F28J12.30"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 1.4%;
Best Local Similarity 76.9%;
Matches 40; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /number=6
                                                                                                                                                                                                                                                           'number=2
                                                                                                                                                                                                                                                                                                                     /number=2
                                                                                                                                                                                                                                                                                                                                                                              'number-3
                                                                                                                                                                                                                                                                                                                                                                                                                                       'number=3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /number=5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /number=5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    number=6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /number=4
                                                                                                                                                                                                  'number-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sequence.
AC004392
93282170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       intron
                                                                                                                                                           intron
                                                                                                                                                                                                                                                                             intron
                                                                                                                                                                                                                                                                                                                                                                                                intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
AUTHORS
                                                                                                                                                                                                                      exon
                                                                                                                                                                                                                                                                                                                                        exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                           exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IEAIELPKTSSGDILTDËENGKIEGTGSGFWUDKLGHIVTNYHVIAKLATDQFGLQRC
KVSLVDAKGTRFSKEGKIVGLDPDNDLAVLKIETEGRELNPVVLGTSNDLRVGGSCFA
IGNPYGYENTLTIGVVSGLGREIPSDNDKSISEAIQTDADINSGNSGGPLLDSYGHTI
GVNTATFTRKGSGMSSGLIEDBSVLNSVYLIMVERKRKQLQRNNSESSNRWORRIE
HDKINNDELVVYRILCPIDVVGGVIGKSGKVINAIRHNTKAKIKVFDQLHGCSQRVIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /db_xref="PID:g2832642"
/translation="MALASSKAFSSIFNTLSPINQSKFVLACSGSNHVDVIDRRRRIM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IFGSSLALTSSLLGSNQQRLPMESAIALEQFKEKEEELEEEEERNVNLFQKTSPSVVY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   jóin(8557. .8838,8913. .9050,9136. .9198,9284. .9373,
9450. .9572,9668. .9755,10089. .10163,10261. .10280,
10348. .10368,12117. .12725,12806. .13321,13362. .13622,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="similarity to MucD - Pseudomonas aeruginosa,
PATCHX:G1184684; contains EST gb:T22208"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product="putative protein"
/db_xref="PID:e1249602"
                                /gene="F28J12.20"
/number=2
                                                                                                                                                                                                              /gene="F28J12.20"
/number=
                                                                                                                                                                                                                                                                                                                             /gene="F28J12.20"
/number=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="F28J12.20"
/number=
                                                                                                                                                     complement(6437. .6534)
/gene="F28J12.20"
                                                                                                                                                                                                                                                                                                                                                                                          complement(6744. .6821)
/gene="F28J12.20"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement(7099. .7187)
/gene="F28J12.20"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement(7188. .7234)
/gene="F28J12.20"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement(7235. .7347)
/gene="F28J12.20"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(7348. .7472)
/gene="F28J12.20"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(7473. .7565)
/gene="F28J12.20"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement(7566. .7702)
/gene="F28J12.20"
                                                                                             complement(6367. .6436)
/gene="F28J12.20"
                                                                                                                                                                                                                                                                           complement(6598. .6676)
/gene="F28J12.20"
                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement(6822. .6946)
/gene="F28J12.20"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement(6947. .7020)
/gene="F28J12.20"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8557. .13947
/gene="F28J12.30"
join(8557. .8838,8
9450. .9572,9668.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               13693. .13947)
/gene="F28J12.30"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /number=11
8557. .8838
/gene="F28J12.30"
/gene="F28J12.20"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /number=10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /number=10
                                                                                                                                                                                                                                                           /numper=5
                                                                                                                                                                                                                                                                                                                 /number=5
                                                                                                                                                                                                                                                                                                                                                                                                                                       /number=6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /number=8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /numper=9
                                                                                                                                                                                                /number=4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /number=7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /number=7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'number-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    intron
                                                                                                                                                         intror
                                                                                                                                                                                                                                                                           intron
                                                                                                                                                                                                                                                                                                                                                                                              intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     intron
                                                                                                                                                                                                                    exon
                                                                                                                                                                                                                                                                                                                                        exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                       exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
```

ö

```
join(33258. .33695,33792. .33939,34028. .34126,34442. .34647,
34733. .34978,35053. .35215,35298. .35558,35630. .35751,
                                                                                                                             .13161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /db_xref-"PID:g3367532"
/translation="MOSIGRFHETETDDKLYQQLVYYHPKYTPIPQTKSPTSSHKTAS
HDLEQPLFLCPHPRYTKQLSDSITFPISNSPEYIVSATKSDGKYEDHSLLPHFWCNN
KEIDVDGGCDICSGSNFGTDYLLCYHCDSIYHKECVQSPFKIEHPYHPEHSLQLSYLD
LNARIMECFCCGRRATYLVYYCIICDVLMHTVCAMKSIPLGGFHELENNGKLFFVYHH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDIOSMNFLGVNSYRLSISWSRVLPNGREGYINYKGIKYYNNLIDALIKKGITPFVT
LNHFDYPQELENRFKSWLSSEMQKDFGYLADICFKHFGDRVKHWITINEPNQHISLAY
RSGLFPPARCSMPYGNCTHGNSETEPFIAAHNMILAHAKAIQIYRTKYQREQKGIIGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VVQTSWFEPISDSIADKNAAERAQSFYSNWILDPVVVGKYPEEMVNLLGSALPKFSSN
BNSEJMSYSDSOFLGINHYTSYFIQDCLITACNSGDGAASKSGCLALKLDBKGNVSTGEL
TDVNWQHIDPUGFRRMINT KNRYHNIPMTTTENGFOLOGAR PETTVEELLHPKRIOY
LSGYLDALKAAMROGANVKGYFAMSLLDNFEMLYGYKVRFGLFHVDFTTLKRTPKQSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FGTDYYFCNCNKMYHKECVESPLKIKHPYHPEHSLECYIHPPFAHNIECLCCGRIASG
QVYYCSICRVLMHSICAMKTIPMVINQPKRHDHPLIFPRQNSLTCNVGLLRKLYST
YICAICNFVAHKDCMYSPRIIKISHCSCTICRQSIDSDYGAYSCAMCGDYVVHSRCAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ERFCGGFIYGCHIRECKFYLDVRCASIYEPFNYKYHEHSMFLASDPKEELLCQVCKTI
CHKQLNCIKCDFIYCIKCATLPEKVRYKHDKHFLRVLFGEELCKGDWCEVCERNLRAT
DTKVFYWCNECGTTFHIECLFGGDLIYVKPGQTLKFFDRDAEILGKSNLSRPLCMNPD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PKYOP IPQTKSPSSDKTANHDLPFOPLFLCPHLRVTKNSSDSLTYPISYSPEYIVSTT
KRDBLSVLPDLFWCINKERFYNDGGOICGSSNFGTDYYFCVCDKIYHKEVQOSPISI
KHPYHPEHSLALSYFLPSAPDIECLCGGTPATDLVGGTICRNWHTPCAMKSIPFU
DQPKSHDHSLLLFPRQASLTCNVCGLLRRNYPTFVCLRCNFVAHKDCMYSPHIIKISR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HHRISYTASLQSEEWSCGVCRKSIDGDYGAYTCEKCKDYVVHYRCALRKDVWDGVEL
EGVPEEDDITKDVGPFEIISEGVILHFLHDHHLQLEVSILYDEEKFCQACVIPIYEGN
HYICVECDFTIHEICAKDRRRIQHALHPHPLTLMAVSKYDTGDFECNACVRNSGGFVY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MCSRKECNFDLDVRCASISEPFNFOGHEHSLFLAIDPSEKPICOMCKSESHIPLNCIK
CDFVVCIKCATLPFKAKYKHDRHSLTILWGEEVCGKDWCEVCERNLGDTDTKVFYWCN
ECCTTLHIECLYGEILYLKLGKYIFDSGGKEFQILGKATSSRPFCNICKNRCOGKIFT
   QAAMRDGANVKGY FVWSLLDNF EWLFGYKVRFGLFHVDLTTLKRSPKQSASWYKNY IE
                                                                                                                                                                                                                                                                                                                                                                                                                                          /db_xref="PID:g3367517"
/translation="MSPTISSAAATPTPSPNGSTFSAALALLVRNRNSCLHQTSD>SS
PFPSDFLFGTASSAFQYEGAFLTDGKGLNNWDVFAHENPGKIVDGSNGDIATDQYHRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GKDVWDGEDLENVPEEDNKLQDVTSFDIISDGVILHFLHDHHLRLKVSILVDENKFCQ
ACVLPIVEGNFYSCMECDFIFHETCPNSCRILLHALHPHQLTLEHVEYDSCRFMCNAC
                                                                                                join(11528. 11625,12458. 12539,12625. 12694,13043. 1
13216. 13291,13473. 13547,13658. 13745,13819. 14071,
14162. 14277,14372. 14630,14741. 14843,14938. 15046,
15190. 15385)
                                                                                                                                                                                                                                                                                  /note="Similar to F4I1.26 putative beta-glucosidase gi/3128187 from A. thaliana BAC gb/AC004521. ESTS gb/N97083, gb/F19868 and gb/F15482 come from this gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       unknown protein T28M21.21
BAC gb|AF002109."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="Strong similarity to unknown protein T28M21.21 gil2088661 from A. thaliana BAC gblAF002109."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          join(16933. .17047,17094. .17705,17750. .18807)
/gene="F8K4.4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CKNPCQVKILKTYNDIVCSVKCGNQVFY"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="Strong similarity to gi|2088661 from A. thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /evidence-not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                   /evidence=not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TWYKNFIEQNVNIEDQIDK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RDNRIACSLICASDIV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         24330. .26774
/gene="F8K4.5"
24330. .26774
/gene="F8K4.5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16933. .18807
/gene="F8K4.4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            33258. .39166
/gene="F8K4.6"
                                                                                          /gene="F8K4.3"
                                                                                                                                                                                                                                              /gene="F8K4.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        join(6976. 7131,7230. 7299,7426. 7484,7603. 7678,
7852. 7926,8035. .8122,8222. .8474,8546. .8661,8775. .9033,
9133. .9235,9320. .9428,9556. .9754)
/gene="F8K4.2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /evidence-not_experimental
/db_xref="PID:93367515"
/translation="MLSSIKPSSSFSTAISGSVRRSIPTKLKFSPLLIIKNCHNQSF
/translation="MLSSIKPSSSSFSTAISGSVRRSIPTKLKFSPLLIIKNCHNQSF
NANVVSHQKPLHISSASNFKRREVKVBAYEADRSRPLDINIELPDEQSAQKLKIGIYFA
TWWALNVVFNIYNKKVLNAFPYPWITSTLSTAGGSLMMLVSWATRIADAPKTDLEFWK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTASSAYOYEGAELTERGESLANMUDETHENDECKILDENNADDRANDOYRRELEDIOLDES
FLGVNSYRFSISWCRILPRGRFGEINYLGIKYYNIFIDALISRGIKPFVTLNHVDYPO
ELEDREOSWINPEMOKEFGYLADICFKHFGHRYKWTTLNBENOOLILGYLTGKFPPS
RCSSPYGNCSOGNSETEPFIAAHMILAHAKAVNIYKTKYÖKEÖKGIGIVOTSWFE
FLSDSNADAREAAERAOFSYNWILDPVIYGKYPKEWVDILGPALPQFSSNEVNLEKS
RADFVGINHYTSYFIDOCLTSACNTGHGAFKREGYALLDRKGNYTGELTDVWWQHI
DPTGFHKMLNYIKDRYPNMPMFITENGFGDLQKPETTDKELLNDTKRIQYMSGYLEAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LLPIIGGCALAAITELNFNITGFMGAMISNLAFVFRNIFSKKGMKGKSVSGMNYYACL
SMMSLVILTPFSIAVEGPQMWAAGWQNAVSQVGPNFVWWVAQSVFYHLYNQVSYMSL
DQISPLTFSIGNTMKRISVIVASIIIFHTPIQPVNALGAAIAIFGTFLYSQVNKQTYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TLFPVAVAHT IGHVAATVSMSKVAVSFTHI IKSGEPAFSVLVSRFFMGETFPLPVYLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /translation="MKNLTSFVIVILLQSLLFHVYGRHQSSSKNILVDSSPFPSDFLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1. The sequence does not represent the sequence of the entire insert of this clone. It is shorter by 3062 bp because we submit only the unique sequence of the clone. In order to facilitate the joining of overlapping clones in the future for creation of larger contigs, we provide a small overlap (200 bp) between overlapping submitted clones. The 3' end of this sequence overlaps by 200 bp the 5' end of the sequence of BAC F19K23.
                                                                                                                                                                                                                                                  Direct Submission
Submitted (01-011-1998) Plant Gene Expression Center, 800 Buchanan
Street, Albany, CA 94710, USA
4 (bases 1 to 115641)
                                                                                          Direct Submission
Submitted (11-MAR-1998) Plant Gene Expression Center, 800 Buchanan
                                                                                                                                                                                                                                                                                                                                                                                                                                      Submitted (01-AUG-1998) Plant Gene Expression Center, 800 Buchanan St., Albany, CA 94710, USA 5 (bases 1 to 115641)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Direct Submission Submitted (04-AUG-1998) Plant Gene Expression Center, 800 Buchanan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sequence is of BAC F8K4 from Arabidopsis thaliana chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="Similar to beta-glucosidase BGQ60 precursor gb|L41869 from Hordeum vulgare."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              glucose-6-phosphate/phosphate-translocator (GPT)
gblAF020814 from Pisum sativum."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /evidence=not_experimental/db_xref="PID:93367516"
                                                                                                                                                       Street, Albany, CA 94710, USA 3 (bases 1 to 115641)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
1. .115641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CLPTSSTWFFSEQFLVLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               St., Albany, CA 94710, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'note-"Similar to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6976. .9754
/gene="F8K4.2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon_start-1
                             1 to 115641)
Unpublished (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                Direct Submission
                                                             Theologis, A.
                                                                                                                                                                                                                        Theologis, A
                                (bases
                                                                                                                                                                                                                                                                                                                                                                                Theologis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Theologis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This
                                                                                                                                                                                 REFERENCE
AUTHORS
                                                                                                                                                                                                                                                  TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                          AUTHORS
                                                                                                                       JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
JOURNAL
                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
```

```
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
                                                                                                                                                                                                                                                                                                        /strain="K-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="katG"

    .93
    /qene="katG"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="katG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         <ī. .1737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <1. .161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_difference 1429.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_difference 1720
                                                                                                                                                                                                             sednence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     misc_difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   terminator
                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                 FEATURES
          COMMENT
                                                                                                                                                                                                                                                                                                                                                 GKDENAVROLISMITSDNOHVVEQACVALSSLARDVGVAMOLMKCDINKFTETVLKKSS
SEDVISVLOVVVTLAFVSDSYSOKLITRDMLKALKSLCAHKNPEVORQALLAVGNLA
FCLENRRILITSESLRELLMRLIVTPEPRVNKAARALAILGENEILRRSIKGROVPK
OGLRILTMDGGGMKCLATVOLIKEIBKGSGRFIHELFDLIGGTSTGGMLAIALGVKLM
TLEOCEEIYKNLGKLVFAESVPKDNEAASWREKLDQLYKSSSQSFRVVIHGSKHSANE
FERLIKEMCADEDGDLIESAVKNVPRVFVVSTLVSVMPAOPFIFRNYOYPVGTPEMS
YAFSDHSGGSTLTSSTASDQAGYYKQSAFMGSCKHQVWQAIRASSAAPYTLDFSNGT
NSYRWODGAIVANNFIFRIRRAQLLMPDTRICTOSTGSGSYPFTRRKGGMRYLDTG
OVLIESACGVERVERALSTLLPMLPEIQYFFFNNVDDDRCGMELDETDPAIMLKLEAAI
                                                                                                                                                                            /evidence=not_experimental
/db_xref="PID:g3367519"
/translation="MSSTCSSPSAVEDPELGFRIDLDWTAGDSEDQVALRLESQLMVA
                                                                                                                                                                                                                                                   LPAPHDTVVVELKGIGDDDGGGLENVGLEMRVEKRREPLRAVTLMKAVGSGQQTGGVG
VLTRLMRSDMMPAAIPAPAIDVASSCGVHWKTVTSLSLSGGGLLVMPVEVTELPLLEK
LCLEHNKLSVLPPEIGKLKNLKILRVDNNMLISVPVELRQCVGLVELSLEHNKLVRPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PLRQMHEKLQNLPQVGILHLSLQNDSNGSILSWQNDVFVVAEPGDLADKFLQSVKVSI
LSVWQSNRRKAASVLSNICSISDLVRSKKCFQVGNIIHRYIGRQTLVMEDDQEIASFM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LIMEAQHSPDSGRVKYHARALESFCSNNGIKLSSLHTTATPGCQKPSPGTAFPTPTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PLITGSLPPSPLLFTPELGPQKFNRIDMVPPLSLDGGHVGKTVMSPPSSPPRQRQLYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FRRTVPSAHLTPDDIRWWYGAWRDRIIVFSGTFGPTQAVVKAFLDSGAKAVIGPSNEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EEFIQSNPQVFKNVCERLTLPFLNDEKWCDNLKPRFMNGKLPNSRVESSPSLGWRRNV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QETPLITSQGSSEYNIGDQNGKFEIGEEEDEDEEVNEETEREEMEPPTPTSDWEDSDH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EKTNRDGKYCGLWEDDEEEVSEFVCQLYDQLFRENSRVDVALQKALASHRKLRYTCHL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Escherichia coli (sub_strain MG1655, strain K-12) (library: lambda)
                                                                                                                                                                                                                                                                                                                            LDFRSLGQRAENTSYFGASRHKLSAFSPLIFRSSSCHHPLLASTLVKIMQDEGNRSVI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement(join(40020. .40765,40848. .41037,41130. .41311,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Escherichia coli
Eubacteria; Proteobacteria; gamma subdivision; Enterobacteriaceae;
                                                                                                  o gb|U51898 Ca2+-independent norvegicus."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
     .36502,36594. .36730,36877. .37015,
.37943,38040. .38256,38354. .38443,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16446 TITITITITITITITITITITITGGTAAAAAATTTCGAGTTTGTATACAAAAATATT 16505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DNA sequence of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         17-DEC-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Latter, F.R., Burland, V., Plunkett, G. III., Sofia, H.J. and Daniels, D.L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1.4%: Score 29; DB 19; Length 115641; larity 73.8%: Pred. No. 1.17e+00; Conservative 0; Mismatches 16; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ECOUW89 176195 bp DNA BCT 17-1
E. coli chromosomal region from 89.2 to 92.8 minutes.
U00006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Analysis of the Escherichia coli genome. IV. region from 89.2 to 92.8 minutes
Nucleic Acids Res. 21 (23), 5408-5417 (1993)
                                                                                                /note="Contains similarity to
                                                                                                                            phospholipase A2 from Rattus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Direct Submission
Submitted (03-SEP-1993) 608-263-7459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement(40020. .41560)
/gene="F8K4.7"
.36170,36301.
.37370,37463.
.39166)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Note: remainder of annotations omitted.
                                                                            /gene="F8K4.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Escherichia.
1 (bases 1 to 176195)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (bases 1 to 176195)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Blattner, F.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          94089392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9409785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Db 16506 T 16506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              T 1959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Сp
```

```
This sequence was determined as part of the E. coli Genome Project (Frederick Blattner, director) at the University of Wisconsin-Madison. Supported by award HG00301 from the NIH Human Genome Project. The entire sequence was independently determined from E. coli MG1655; overlaps and conflicts with other sequence determinations are annotated. The start of this entry overlaps the end of the entry ECOUWR9 (L19201) by 93 bp. NOTE: An update was submitted on 25-OCT-1993, reflecting a correction to the hemE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="catalase hydroperoxidase I"
/db_xref="PiD: 336289"
/db_xref="PiD: 336289"
/db_xref="PiD: 336289"
/db_xref="PiD: 346289"
/db_xref="PiD: 346289"
/db_xref="PiD: 346289"
/db_xref="PiD: 346289"
/db_xref="PiD: 346288"
/db_ydpeI: IPDEPDPSKKKRKPMLVTDLTLRFDPEFEKISRREINDPOAFNEARAKWFK
LTHRDMGPKSRYIGPEVPKEDLIWQDPLPQPIYNPTEQDIIDLKFAIADSGLSVSELV
SVAMKAASTFRGGDKRGGANGARLAMPQRWDVNAAAVRALPVLEKIGKESGKASLA
DIIVLAGVVGVEKAASAAGLALJAPPGRVDARQDQTDIEMFELLEPIADGFRNYRA
RLDVSTTESLLIDKAQQLTLTAPPEMTALVGGNRVLQANFDGSKNGVPTDRYGYNYRA
FVNLLDMRYEWKATDESKELFEGRDREIGEVKFTASRADLVFGSNSVLRAVAEVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="This sequence comprises the following lambda clones: EC18-126, EC14-54, EC17-203, EC19-105, EC18-24, EC17-203, EC19-105, EC18-208, EC18-110, EC17-200, EC18-33, EC30-41, EC30K637-2a, EC30K637-5, EC27-975, EC22-27; Mi3mpl9 or Janus vectors were used for subcloning" 1. 1257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SYIGAFDFTALRCIFGALVLFIVLLLRGRGMRPTPFKYTLAIALLQTCGMVGLAQWAL
VSGGAGKVALLSTYMFFWVYIFAALFLGERLRRGOYFAILIAAFGLFLVLQPWQLDFS
SWKSAMLAILSGVSWGCASTVAKRLYR THPRVDLLSLTSWQMLYAALVMSVVALLVPQ
REIDWQPTVFWALAYSAILATALAMSLMLFVLKNLFASIASLSTLAVPVCGVLFSWML
LGENPGAVEGSGIVLIVLALALVSRKKKEAVSVKRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /standard_name="catalase HPI; catalase-peroxide; catalase"
/EC_number="1.11.1.6"
/note="CG Site No. 14983"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /label=ORF_0312
/db_xref="PID:g409786"
/translation="MGERKLHTGSLMSAAGKSNPLAISGLVVLTLIWSYSWIFMKQVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1317. .2255
/note="similar to Desulfurolobus ambivalens hypoth. 28.3
Kbb protein in sor 3' region"
/codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="corresponds to M21516; ECOKATGA(1225. .2805)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="93 bp overlap with end of L19201 (ECOWU87)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="corresponds to lambda clone EC18-126"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            156. .15760
/note="corresponds to lambda clone EC14-54"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1429. .1432
/note="TTT in M21516; TTTT here"
                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Escherichia coli"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DAHEKFVKDFVAAWVKVMNLDRFDLL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="C in M21516; G here" complement(2282. .2899) /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="G in M21516; C here"
1266. .1305
/note="putative"
                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
```

gene CDS

```
/label-ORF_0359
/db_xref="PID: 9396296"
/db_xref="PID: 9396296"
/db_xref="PID: 19396296"
/db_xref="PID: 19396396"
/db_xre
                                                                                                                     /label-GRF_0109
/Label-PID: 194.09788"
/translation-*RARITGGFRLVSETGSGSSSSDLTSASGASOWGNSSRSHWLKR
WCASCSSAPEISNWQLSPASVSVPISARALLALPCGQCAGYATQFVMKKYYTAFQRGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LTNSLTQWLQGMQQGSIVMLAVIMGLMLAFDMGGPVNKVAYAFMLICVAQGVYTVVAI
AVGYGETPPELGMGLATLIGRKNESABERETGRAALVMGCVGVTEGAIPPAAADDLRVI
PSINVGSVCGAVTAALUGAQCYAGWGGLIVLPVVEGKLGYIAAVAVGAVVTAVCVNVL
KSLARKNGSSŢDEKEDDLDFEIN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7578. 7699
700te="putative"
7778. 7699
700te="putative"
700te="promoter matrix score of 48; putative; within ORF 0359, which would suggest alternate start codon"
7711. 8850
700te="similar to phosphotransferase system enzyme II"
700don_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Db 137388 CCTTCTGCGACCACTTCACCGCCGTGAACACCTGCGCCCGGGCCAATGTCGATCACATGG 137447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1090 CCTTCTGCCACCGCTTCACCGAGGTGATCACCAGCTCCCCACCCTGTTTCTGTCCCATGA 1031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                       /noie="promoter matrix score of 46; putative" 7200. 25839 700. 25839 7578. 7699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 176195;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 28; DB 12; Length 1761
Pred. No. 3.33e+00;
0; Mismatches 18; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="predicted bend of 74 degrees"
                                                                                                                                                                                                                                                                                                                                   .7136)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5 10:57:29 1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Note: remainder of annotations omitted.
                                                                                                                                                                                                                                                                                                                                   complement(7108.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /transl_table=11
                                                                                  /transl_table=11
                                           /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity 71.9%;
Matches 46; Conservative
                                                                                                                                                                                                                                                                                                PDAHVRR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8865.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Search completed: Thu Nov Job time: 6226 secs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Db 137448 TCAG 137451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_structure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Cp 1030 CCAG 1027
                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             terminator
                                                                                                                                                                                                                                                                                                                                           promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ე
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /label-ORF_f220
/db_xref="plD:g396293"
/translation="melyldpanyaeverlarifplagytynpsiiaaskesiwevlp
Rlokaigdegilfaqimsrdaggwyebakrlrdaipgivvkipvtseglaafikilkke
GITTLGTAYSAAGGLLAALAGAKYVAPYVNRVDAQGGGGIRTVQELQTLEBMAAPES
MVLAASFKTPRQALDCLLAGGESITLPLDVAQQMLNTPAVESAIEKFEHDWNAAFGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NGAEGVGLFRTEMLYMDRTSAPGESELYNIFCQALESANGRSIIVRTMDIGGDKPVDY
LNIPARANPFLGYRAVRIYEEYSLETTQLRSILTRASHGESKUKINPMISSMEEILWY
KEKLABARQQLRNEHIPFDERIQLGTMLEVPSVWFIIDOCCEEIDFFSIGSNDLTQYL
LAVDRONAKVTRYNSLNPAPLRALDYAVQAVHRQGKWIGLCGELGARGSVLPLUVGL
                              /label=GRF_f205
//Label=GRF_f205
//Label=GRF_f205
//Labelation="RKASLALLSLITARFTSHSLKSPAVPPTVVOIOANTNLAIADGAR
QQIGSTLFYDPAYVQLIYPGGDVPQERGVCSDVVIRALRSQKVDLQKLVHEDMAKNFA
EYPGKWLKTRPDSNIDHRRVPRLETWFSRHDKTRPTSRNPSDYCAGDIVSWRLDNGLA
HIGVVSDGFARDGTPLVIHNIGAGAQEEDVLFNWRWGHYRYFVK"
complement(2886...2915)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product-"glycerol dehydrogenase"
/bloxete-"plD:g196292"
/translation-"WHLALLISKGAIMDRIIQSPGKYIQGADVINRLGEYLKPLXER
WLVVGDKFVLGFAQSTVEKSFKDAGLVVEIAPFGGECSQNEIDBRLRGIAETAQCGAIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LKNIEFRLLDSDGATSAILEAHRSLAGDTSLREHLLAGVSAGLSCAEÄIVASANHFCE
EFERSSSY YLGERALDYRDVCFQLLQQIYGEQRFPAPGKLTQPAICMADELTPSGFLE
LDKNHLKGLLLKSGGTTSHT VILARSFNIPTLVGVDIDALTPWQQTIYIDGNAGAIV
VEPGEDYARYYQQEARVQDALREQQRWWLTQQRIRDGIRIELAANIAHSVEAQAAFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GLDELSMSAPSIPAAKARMAQLDSRECRKLLNQAMACRTSLEVEHLLAQFRWIQQDAP
LVTAECITLESDWRSKEBVLKGWIDNILLAGRCRYPRKLEADLWAREAVFSIGLGFSF
APPEKSEBTEQGTISVARLQAPVRKGDDEAQFIIMLTLNKHAAGDQHWRIFSRLARR
IMHEEFRNALVNAASDAIASLLQHELEL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GIGGGKTLDTAKALAHFMGVPVAIAPTIASTDAPCSALSVIYTDEGEFDRYLLIPNNP
NWVIVDTKIVAGAPARLLAAGIGDALATWFEARACSRSGATTMAGGKCTQAALALAEL
CYNTLLEEGEKAMLAAEQHVVTPALERVIEANTYLSGVGFESGGLAAAHAVHNGLTAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PDAHHYYHGEKVAFGTLTQLVLENAPVEEIETVAALSHAVGLPITLAQLDIKEDVPAK
MRIVAEAACAEGETIHNMPGGATPDQVYAALLVADQYGQRFLQEWE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /label=ORF_f711
/db_xref="PID:g409787"
/translation="MCSGSAGGILTPISSLDLNALGNLPAAKGVDAEQSALENGLTLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement(4922. .4949)
/note="promoter matrix score of 47; putative; within ORF f220, which would suggest alternate start codon" complement(4962. .7097)
/note="similar to phosphotransferase system enzyme I"
                                                                                                                                                                                                                                                                                                                              /note="promoter matrix score of 42; putative; within ORF f205, which would suggest alternate start codon" 2912. .3053
/note="predicted bend of 81 degrees"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="gldA" /note="similar to Bacillus stearothermophilus glycerol dehydrogenase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3031. ,3064
/standard_name="REP; repetitive extragenic palindromic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="predicted bend of 75 degrees" complement(4288. 4950) /note="similar to Bacillus subtilis hypoth. 20 kDa protein, in tsr 3' region"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3090. 3219
/note="predicted bend of 75 degrees"
complement(3174. 4316)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="contains 1 REP sequence"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
/transl_table=11
/label=ORF_f380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /transl_table=11
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="gldA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="gldA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4022. .4156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            element"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_structure
                                                                                                                                                                                                                                                                                                                                                                                                                      misc_structure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_structure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           promoter
                                                                                                                                                                                                                                                                                           promoter
```

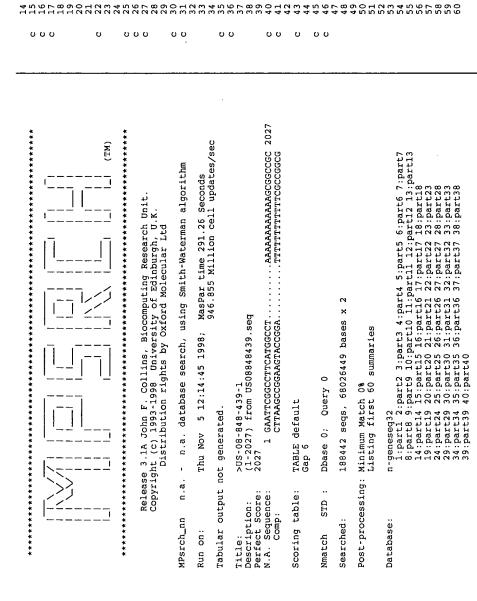
CDS

CDS

ö

Gaps

Generic DNA sequence
Generic DNA sequence
Generic DNA sequence
Generic DNA sequence
Human endothelin-1 an
Chymase antisense oll
Generic DNA sequence



Substance P receptor Human IL3 receptor an Human MDNCF antisense Chymase antisense oli

0070469 00704668 00704668 0070467 1764668 007047 176467 007047 176

1114 1114 11114 11114 11114 1114 1116 116

Human endothelin-1 an

Human neutrophil elas HCV envelope region n HSV-1 gB and surround Human IL3 antisense o Human IL6 antisense o Human IL6 antisense o Human IL6 antisense o Human RANTES antisens

Vascular anti-coagula Sequence encoding vas Plasmid contg. placen Anticoagulant PP4 DNA Endonexin II complete Feline zona pellucida

Human interleukin 8 a Human leukotriene C4 PAP-I cDNA from human

Mouse frizzled gene 7 Human endothelin ETA Human endothelin rece Human defensin 3 anti

765611 76423 776423 776416 776299 010792

11575 1 1605 1 1840 11 2259 37 125 32 144 32 145 32 789 2

Bovine vascular endot Bovine VEGF-164 codin

ALIGNMENTS

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

scale 1.431

Variance 6.883;

Mean 9.846;

Statistics:

Gene signature; messenger RNA; mRNA; relative abundance; frequency; whuman; cloning; mapping; non-blased library; diagnosis; detection; cell typing; abnormal cell function; ss.

Homo sapiens.

NW 09514772-A1.

OL-JON-1994; J01916.

11-NOV-1994; J01916.

12-NOV-1994; J01916.

12-NOV-1993; JP-35504.

MATS/) MATSUBARA K.

(NUUD) OKUDO K;

MATS/) MATSUBARA K.

Identifying qene signatures in 3'-directed human cDNA library - e.g.

Identifying qene signatures in 3'-directed human cDNA library reflects relative abundance of corresp. mRNA in specific human ВЪ T23535 standard; cDNA to mRNA; 204 T23535, T23535, O2-SEP-1996 (first entry) Human gene signature HUMGS05382. RESULT

Page 1393; 2245pp; Japanese

tissues Claim 1;

1.01e-97 6.84e-16 9.73e-09 3.03e-09 3.03e-09 8.76e-07 8.76e-07 8.76e-07 8.76e-07 8.76e-07 9.76e-07

Human frizzled gene 5 Mouse frizzled gene 8 Oligonucleotide probe Human interleukin 8 a Base substituted E.co Oligonucleotide probe Human IL4 receptor an

1123535 1889889 188892 1763889 176389 176386 176186 176186 176186 176186 176186 176186 1776186 1776186 1776186 1776186 1776186

3370

94444444444

O

Human gene signature

Description

BB

Length

Query

Score

Result . 8 Generic DNA sequence Generic DNA sequence Base substituted E.co Generic DNA sequence Generic DNA sequence

```
double-stranded DNA (or its complementary strand or the corresp.

double-stranded DNA) which comprises one of the 7837 "GS" sequences

given in T19001-T26837 and which is able to hybridise to part of

human genomic DNA, cDNA or mRNA is claimed. The GS (Gene Signature)

CC sequences were obtained from 3'-directed cDNA libraries prepared

from various human tissues; synthesis of cDNA was initiated from the

3'-end of mRNA by using poly(T) as the sole primer. Since the 3'-

curranslated sequence; unique to a particular mRNA species, almost

curranslated sequence is unique to a particular mRNA species, almost

clal the 3'-oriented cDNAs hybridise with specific mRNAs. Each library

clas constructed so as to reflect accurately the relative abundance of

different mRNAs in the particular tissue from which it was derived.

The appearance frequency of a given GS in a cDNA library can be

determined (esp. using primers and probes derived from the GS

csequences) as a means of diagnosing abnormal cell function or for

sequence 204 BP; 54 A; 59 C; 35 G; 55 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1207 GATCTCAGCTCCCGTTCCCCAAGCACACTCCTAGCTGCTCCAGTCTCAGCCTGGGCAGCT 1266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCCCCCTGCCTTTTGCACGTTTGCATCCCCAGCATTTCCTGAGTTATAAGGCCACAGGAG 1326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tcccctgccttttgcacgtttgcatccccagcatttcctgagttataaggccacaggag 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Identification of Wnt receptor binding modulators - useful for treatment of cancer and growth, development or proliferation related
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This sequence comprises novel human fizizled gene 5 (HfZ5) that encodes a transmembrane receptor, frizzled-5 (see W31771), a what encodes a transmembrane receptor, frizzled family members have been identified in Drosophila, mouse, human and Caenorhabditis (see T89885-92) and are considered to be Wnt receptors. Wnt receptors can be used in a novel, claimed method of screening for compounds which modulate the binding of a Wnt polypeptide (secreted proteins involved in cell to-cell signalling) to a Wnt receptor. Wnt is involved in (mammary) cancer and other processes involving growth,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gatctcagctcccgttccccaagcacactcctagctgctccagtctcagcctgggcagct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             27-APR-1998 (first entry)

Human frizzled gene 5 (Hfz5) encoding a Wnt receptor.

Wnt receptor; human frizzled gene 5; Hfz5 gene;

signal transduction; cancer; cell growth; cell proliferation;

mammary tumour; oncogene; therapy; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 204;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 201; DB 20; Length 20.
Pred. No. 1.01e-97;
0; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Identification of Wnt receptor binding modulators
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                23-OCT-1997.
11-APR-1997; U06049.
12-APR-1996; UG-015307.
(VYO) UNIV JOHNS HOPKINS.
(STRD ) UNIV LELAND STANFORD JUNIOR.
Andrew D., Bhanot P, Blink M, Hsieh J, Nathans J,
NUSSE R, Samos CH, Wangy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Disclosure; Page 36-37; 61pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers 321..2078
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1387 AATAAAATCATGAATATTTTA 1408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               T 2
T89889 standard; DNA; 2334 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181 antaaaatcatqaatattttta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity 99.5%;
201; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /*tag= a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               P-PSDB; W31271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Sim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO9739357-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               disorders
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   189889;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REGULAR MANAGE COLOR OF THE STATE OF THE STA
                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Disclosure; page 46-47; 61pp; English.

This sequence comprises novel mouse frizzled gene 8 (Mf28)

This sequence comprises novel mouse frizzled 9 (see W31274),

that encodes a transmembrane receptor, frizzled-8 (see W31274),

a Wnt receptor (WATE). Novel frizzled family members have been

cidentified in Drosophila, mouse, human and Caenorhabditis (see

189885-92) and are considered to be Wnt receptors. Wnt receptors

can be used in a novel, claimed method of screening for compounds

which modulate the binding of a Wnt polypeptide (secreted proteins

involved in (mammary) cancer and other processes involving growth,

development and proliferation (both normal and abnormal).

Modulators identified by the claimed method are useful for

treatment of diseases related to these conditions.

Sequence 2421 BP; 403 A; 772 C; 779 G; 467 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         640
                                                                                                                                                                                                                                                                                                                                                                                                                     678
                                                                                                                                                                                   439 tgtgccgcggcatcggctacaacctgacgcacatgcccaaccagttcaaccacgacacgc 498
                                                                                                                                                                                                                                                                499 aggacgaggcgggcctggaggtgcaccagttctggccgctggtggagatccaatgctcgc 558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              lacentilication of Wnt receptor binding modulators - useful for discretion of cancer and growth, development or proliferation related
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                               Gaps
                                                                                                                                                                                                                         401 TGTGCCACGGCATCGAATACCAGAACATGCGGCTGCCCAACCTGCTGGGCCACGAGACCA
                                                                                                                                                                                                                                                                                                                                            521 CGGACACCAAGAAGTTCCTGTGCTCGCTCTTCGCCCCCGTCTGCCTCGATGACCTAGACG
                                                                                                                                                                                                                                                                                                                                                                                                                     619 agccgctgccgcctgccgctcggtgtgcgagcgccaaggccggctgctcgccgctga
                                                                                                                                                                                                                                                                                                                                                                                                                                                           581 AGACCATCCAGCCATGCCACTCGCTCTGCGTGCAGGTGAAGGACCGCTGCGCCCCGGTCA
                                                                                                                                                                                                                                                                                                  TGAAGGAGGTGCTGGAGCCGGCGCCTTGGATCCCGCTGGTCATGAAGCAGTGCCACC
                                                                                                                                               .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     27-APR-1998 (first entry)
Mouse frizzled gene 8 (Mfz8) encoding a Wnt receptor.
Wnt receptor; mouse frizzled gene 8; Mfz8 gene;
signal transduction; cancer; cell growth; cell proliferation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tgcgccagtacggcttcgcctggcccgagcgcatgagctgcgaccgcctccc 730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      641 IGTCCGCCTTCGCCTTCCCCTGGCCCGACATGCTTGAGTGCGACCGTTTCCC 692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 2421;
                                                                  439 T;
                                                                                                      Length 2334;
development and proliferation (both normal and abnormal). Modulators identified by the claimed method are useful for treatment of diseases related to these conditions. Sequence 2334 BP; 356 A; 803 C; 736 G: 439 T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 56; DB 37; Length 242
Pred. No. 7.60e-15;
0; Mismatches 121; Indels
                                                                                                                                             0; Mismatches 117; Indels
                                                                                                      Score 58; DB 37; Pred. No. 6.84e-16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JUNIOR.
Hsieh J, Nathans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
188..2245
/*tag= a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mammary tumour; oncogene; therapy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12-APR-1996; US-015307.
(UVJO) UNIV JOHNS HOPKINS.
(STRD ) UNIV LELAND STANFORD JU Andrew D, Bhanot P, Brink M, HS Wusse R, Samos CH, Wangy; P7-526631/48.
P-PSDB; W31274.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               T 3
T89892 standard; DNA; 2421 BP.
                                                                                                    7.9%;
Local Similarity 59.9%;
Les 175; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 2.8%;
Best Local Similarity 59.4%;
Matches 177; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11-APR-1997; U06049.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO9739357-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         23-OCT-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         disorders
                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       T89892;
                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                        559 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  619
                                                                                                                                                                                                                                                                                                    461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
          ខ្លួខ្លួន
                                                                                                                                                                                   g
                                                                                                                                                                                                                         δλ
                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                               δλ
                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
```

m

```
adenosine-free antisense oligo:nucleotide to airway epithelium of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       See also
                                               Claim 5;
                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Match
                         subject
                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best
  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ï
                      365
                                                                                                                                                                                             gctccccggacctcaagttctttctgtgtagatgtacacgcccatctgcctggaggact 485
                                                                                                                                                                                                                                                                                      486 acaagaagcctctgccgccttgtcgctctgtgtgtgtgaacgcgccaaggccggctgcgcgc 545
                                                                                                           acacgcaagatgaggcgggcctagaggtgcaccagttttggccgctggtggagatacagt 425
                                                             TGCAGCTGTGCCACGGCATCGAATACCAGAACATGCGGCTGCCCAACCTGGTGGGCCACG 454
                                                                                                                                                                                                                                           GCCACCCGGACACCAAGAAGITCCTGIGCTCGCTCTTCGCCCCCGTCTGCCTCGATGACC 574
                                                                                                                                                                                                                                                                                                                             575 TAGACGAGACCATCCAGCCATGCCACTCGCTCTGCGTGCAGGTGAAGGACCGCTGCGCCC 634
                                                                                                                                                                                                                                                                                                                                                                             cgctcatgcgccagtacggctttgcttggctgaccgcatgcgctgcgatcggttgcc 603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Treatment of airway diseases such as asthma - by topically applying
                                                                                                                                                                                                                                                                                                                                                                                                                      635 CGGTCATGTCCGCCTTCGGCTTCCCCTGGCCCGACATGCTTGAGTGCGACCGTTTCCC 692
                                                                                                                                        254
                      tgccgttgtgcaaaggcatcggttacaactacacttacatgcccaaccagttcaaccacg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5 ccggcgssvhsyyvvhvvshhhsvhhvvhhvhvvhhvhvhhvhyhvyvsvc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Samples Claim 3: Page 14: 23pp; English.

Claim 3: Page 14: 23pp; English.

Oligourclectide probe Wil4-A consists of nucleotides 5-95 of N (051735). It hybridized to all spp. of mycobacterial spp. The probe may be useful as an initial screen for mycobacterial infection. See also Q51735-45 and Q51747-59.

See also Q51735-45 and Q51747-59.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Shank DD, Spears PA; WPI; 93-378844/48. New oligo:nucleotide probes specific for Mycobacteria - used detection and amplification of Mycobacteria nucleic acid in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 31-MXY-1994 (first entry)
Oligonucleotide probe MK14-A
Oligonucleotide; DNA probe; mycobacteria; disease diagnosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Asthma; airway epithelium; adenosine free; cystic fibrosis; chronic obstructive pulmonary disease; bronchitis; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2.2%; Score 44; DB 9; Length 91;
8.8%; Pred. No. 9.73e-09;
ative 48; Mismatches 3; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15-SEP-1997 (first entry)
Human interleukin 8 antisense oligonucleotide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MO964012
19-DEC-1996; U09306,
06-JUN-1995; US-474497,
(UYEC-) UNIV BAST CAROLINA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EP-571911-A.
01-DEC-1993.
24-MAY-1993. 108325.
26-MAY-1992; US-889651.
(BECT.) BECTON DICKINSON CO.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q51746 standard; cDNA; 91 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              176363 standard; DNA; 172 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO9640162-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Synthetic
                    306
                                                                                                        366
                                                                                                                                                  455
                                                                                                                                                                                               426
                                                                                                                                                                                                                                        515
                                                                                                                                                                                                                                                                                                                                                                             546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME OF THE PART O
                                                                                                      g
                                                                                                                                                  ò
                                                                                                                                                                                        엄
                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                   õ
```

```
Introducing random point mutations into nucleic acods -

Introducing random point mutations into nucleic acods -

By preph of single stranded template, annealing a primer, elongation,

maisincorporation, completion of molecules and screening.

Bisclosure; p; English.

Random point mutations were introduced into the alpha fragment of

E. coll beta-galactosidase. The wild type sequence was obtained as a single stranded template and an oligonucleotide was hybridised to

it to generate a popn of DNA molecules which terminate at all

consistent and generated in this way are used as primers for reverse transcriptase. Nucleotides are misincorporated by the transcriptase and the molecules are completed to forms that can be amplified and then expressed in a suitable host-vector system.

The sequence covers all 176 difft base substitutions, most of which
                          A method for treating airway disease in a subject has been produced, which involves the topical administration of an essentially adenosine free antisense oligonucleotide (ON) to the airway epithelium of the subject. The present sequence is an antisense oligonucleotide specific for the human interleukin 8, targeted at the initiation codon. The method can be used to treat airway diseases such as cystic fibrosis, asthma, chronic obstructive pulmonary diseases, bronchitis and other airway diseases characterised by an inflammatory response. By eliminating adenosine from the antisense ON, its liberation upon antisense degradation is prevented, thereby preventing adenosine-induced bronchoconstriction in patients with hyper-reactive airways. Sequence 172 BP; O A; 35 C; 42 G; 39 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       71 gtbggtcbgbbbgbtgtgcttbccttcbcbcbgbgctgcbgbbtcbggbbggctgccbb 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              268 CCTGGCTGCTGCTGCTCTTCCTCGCTCGCACTGCTGCCTGGGCTCGGGCGCGGGG 327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11 bccbbbgcbtcbbgbbtbgctttgctbtctbbggbtcbcbtttbgbcbtbggbbbcgct 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N81164;
08-NOV-1990 (first entry)
Base substituted E.coli beta-galactosidase alpha-fragment.
E.coli beta galactosidase alpha-fragment; base substitutions; ss.
Escherichia coli.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    108 Others;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ė
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (SUSO) SUOMEN SOKERIOY.
Lehtovaara P, Knowles J, Koivula A, Bamford J, Reinikainen
WPI; 88-279927/40.
                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 32; Length 172;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 204;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             42; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /function-multiple cloning site 187..204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 43; DB 1; L. Pred. No. 3.03e-08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3.11e-09;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                45; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      occurred singularly in any given mutant.
See also P80575.
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    47 C;
Page 36; 71pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             T 6
N81164 standard; DNA; 204 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                            2.2%; ilarity 32.6%; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2.18;
11.58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     19..69
/*tag= a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            05-MAY-1988.
30-MAR-1988; 105163.
03-APR-1987; US-034819.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
les 42; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   131 gbgbgccbc 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 328 CICITCCIC 336
```

ö

```
Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Fowlkes DM,
                                                                                                                                                                                                                                                                                                                                                                                                                                              070466;
                                                                                                                                                                                                                                                                                          29
                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
    88888
                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A method for treating airway disease in a subject has been produced, which involves the topical administration of an essentially adenosine free antisense obligonucleotide (ON) to the airway epithelium of the subject. The present sequence is an antisense obligonucleotide specific for the human IL4 receptor, targeted at the initiation codon. The method can be used to treat airway diseases such as cystic fibrosis, asthma, chronic obstructive pulmonary disease, bronchitis and other airway diseases characterised by an inflammatory response. By eliminating
    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                      GCTCTTCCTCTTTGGCCAGCCCGACTTCTCCTACAAGCGCAGCAATTGCAAGCCCATCCC 386
                                             dchvgccgymrttthhyrrmrbnvyrdynrsdaaawyccyrrsvkydccynachhddhyv 137
    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Treatment of airway diseases such as asthma - by topically applying adenosine-free antisense oligo:nucleotide to airway epithelium of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Human IL4 receptor antisense oligonucleotide.
Asthma; airway epithelium; adenosine free; cystic fibrosis;
chronic obstructive pulmonary disease; bronchitis; interleukin; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MK14
but
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                used for
    ;
0
                                                                                                                                 138 ybbbvynvhnhnncncccbnnhvchnvhbnnhrnwayvrhdarrddvhccvch 190
                                                                                                                                                             387 GGCCAACCTGCAGCTGTGCCAGGATGCAGAACATGCGGCTGCCCA 439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Claim 3; Page 14; 23pp; English.
Oligonucleotide probe MK14-A consists of nucleotides 5-95 of (Q51735). It hybridized to all spp. of mycobacteria tested, cross reacted to a few non-mycobacterial spp. The probe may be useful as an initial screen for mycobacterial infection. See also Q51735-45 and Q51747-59.
Sequence 91 BP; 5 A; 17 C; 15 G; 4 T;
                                                                                                                                                                                                                                                                                                        31-MX-1994 (first entry)
Oligonucleotide probe MK14-A
Oligonucleotide; DNA probe; mycobacteria; disease diagnosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           New oligo:nucleotide probes specific for Mycobacteria – use detection and amplification of Mycobacteria nucleic acid in
  Mismatches 42; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1093 GCCCCTTCTGCCACCGCTTCACCGAGGTGATCACCAGCTCCCCACCC 1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 91;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12 svhsyyvvhvvshhhsvhhvvhhvhvhvhvhhvhhvhhvhyvyv 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 41; DB 9; L
Pred. No. 2.88e-07;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      44; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Treatment of airway diseases such as asthma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Example 5; Page 29; 71pp; English.
58;
                                                                                                                                                                                                                                                                                                                                                                                              Synthetic.
EP-571911-A.
01-DEC-1993.
24-MAY-1993; 108325.
26-MAY-1992; US-889651.
(BECT ) BECTON DICKINSON CO.
Shank DD. Spears PA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LT 8
176186 standard; DNA; 100 BP.
176186;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                19-DEC-1996.
06-JUN-1996; U09306.
07-JUN-1995; US-474497.
(UYEC-) UNIV EAST CAROLINA.
METSGET WJ. NYCE JW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2.0%;
0.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12-SEP-1997 (first entry)
  Conservative
                                                                                                                                                                                                                                                                 Q51746 standard; cDNA; 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Shank DD, Spears PA;
WPI; 93-378844/48.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 97-051871/05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WO9640162-A1.
13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           samples
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      subject
                                           78
                                                                                      327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
  Matches
                                                                                                                                                                                                                                          RESULT OF COLORS OF COLORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                               ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Сp
                                                                                      ò
                                                                                                                                                                             8
```

```
Districtions are, regarded to generate random TSAR (Totally Synthetic Affinity Reagents) peptides. This generic formula can also be represented as follows: X(NNB)10(TGC)2(NNB)42(NNB)8 (TGC)(NNB) or expresented as follows: X(NNB)10(TGC)2(NNB)10(TGC)2(NNB)8 (TGC)(NNB) or that are not specified further. Other generic sequences are shown in Q70466-68. Other specific peptides generated by these generic sequences are shown in R65151-54. TSARs are concatenated heterofunctional proteins or peptides, comprising at least two functional regions - a binding company with affinity for a ligand and a second effector peptide portion that is chemically or bloogically active. They may further comprise a linker peptide between the 2 domains. The oligonucleotides are also designed so that the expressed peptide contains 2 or 4 cysteine residues confer some degree of conformational rigidity to the peptides. The TSARs or compsising a TSAR binding domain can be used in vivo to deliver a chemically or biologically active molety, eg. metal conformations or madioisotope, peptide, toxin or enzyme, to the specific target or in, randioisotope, peptide, toxin or anzyme, to the specific target or complex methods of hybridoma formation or in vivo antibody production. The TSARs are easily characterised and have designed activity allowing direct and rapid detection in a screening process.
                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                   99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Generic DNA sequence to generate a random TSAR-9 petide library.
TSAR; totally synthetic affinity reagent; synthetic; binding domain;
effector domain; concatenated heterofunctional protein; linker;
direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                             7 bgbgcttgccbcctgcbgcbggbccbggcbgctcbcbgggbbcbggbgcccbgbgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Identifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins comprising a binding domain and an effector domain bisclosure, Page 35, 255pp; English.
adenosine from the antisense ON, its liberation upon antisense degradation is prevented, thereby preventing adenosine-induced bronchoconstriction in patients with hyper-reactive airways. Sequence 100~\mathrm{BP};~0~\mathrm{A};~33~\mathrm{C};~30~\mathrm{G};~10~\mathrm{T};
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ğ
                                                                                                                                                                                                                                               .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   can
                                                                                                                                                                                Length 100;
                                                                                                                                                                         Score 40; DB 32; Length 100
Pred. No. 8.76e-07;
26; Mismatches 25; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ccbccccbttgggbgbtgccbbggcbccbg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         31-JAN-1994; US-189331.
(UYNC-) UNIV NORTH CAROLINA.
Fowlkes DM, KAY BK;
                                                                                                                                                                         Query Match 2.0%;
Best Local Similarity 43.3%;
Matches 39; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    T 9
Q70466 standard; DNA; 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  05-APR-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-013416.
US-176500.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            T0000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 94-279739/34.
P-PSDB; R65152.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-FEB-1993;
30-DEC-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-FEB-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO9418318-A
```

Length 114;

Score 40; DB 12; Pred. No. 8.76e-07;

2.0%;

S

Matches

g

ò

ò

```
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            47 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q70469 standard; DNA; 114 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    y Match
Local Similarity 15.6%;
hes 20; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               21 A;
                                                                              J. 11
N81164 standard; DNA; 204
N81164;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       55..60
/*tag= a
/note= "th
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            204 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  179 arrddvhc 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          223 GCGGAGCC 216
                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                       primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 070469;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           29
                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Tidentifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins

PT comprising a binding domain and an effector domain

Disclosure: Page 35: 255pp. English.

COMOTORIST a generic DNA Sequence used to generate random TSAR (Totally CY0468 is a generic DNA Sequence used to generate candom TSAR (Totally CY0468 is a generic DNA Sequence used to generic formula can also be represented as follows: X(NNB)11(TGC)(NNB)7(TGC)(NNB)10Y. X

CA and Y are flanking restriction sites (X is not the same as Y) that are not specified further. Other generic sequences are shown in Q70466-68.

CO ther specified further other generic sequences are shown in R65151-54. TSARS are concatenated by these generic sequences are shown in CR65151-54. TSARS are concatenated by these generic sequences are shown in CR65151-54. TSARS are concatenated by these generic sequences are shown in CR65151-54. TSARS are concatenated by these generic sequences are shown in CR65151-54. TSARS are concatenated by these generic sequences are shown in CR65151-54. TSARS are concatenated by these generic sequences are allowed and a second effector peptide portion that is chemically or biologically active. They may further comprise a linker of the the expressed peptide contains 2 or 4 cysteine residues positioned in, or flanking, the unpredicted or variant residues. These residues confer some degree of conformational rigidity to the peptides. The TSARS or comprising a TSAR binding domain can be used in vivo to deliver a chemically to biologically active molety, eg. metal ion, cadioisocope, peptide, toxin or enzyme, to the specific target or on the companiant or polyclonal antibodies and therefore circumvent the need for common leave methods of bubicides and degree of the production of macromolecules, eg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                for complex methods of hybridoma formation or in vivo antibody production. The TSARs are easily characterised and have designed activity allowing direct and rapid detection in a screening process. Sequence 114 BP; 0 A; 2 C; 2 G; 2 T;
    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       199 CCGCCTCGCCCTTCCCCGGCTCCGCTCTGCCCCCTCGGGGGTCGCGCCCCACGATG 258
                                                                                   272 GCTCGCTGCTGCTGCTCTTCCTCGCCTCGCACTGCTGCCTGGGCTCGGCGCGCGGGGCTCT 331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5 gennbanbanbanbanbanbanbanbanbanbtgetgennbanbanbanbannanan 64
                                                                                                                                                                                                                                                                                                                  Generic DNA sequence to generate a random TSAR petide library. TSAR; totally synthetic affinity reagent; synthetic; binding domain; effector domain; concateneated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sequence represents 'Z'; Z can be ', 9 or 12 nucleotides (see
    ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                63 banbanbanbanbanbanbtgcanbanbanbanbanbanbanbanbanb
                                                                                                                                                                      332 TCCTCTTTGGCCAGCCGACTTCTCCTACAAGCGCAGCAATTGCAAGCCC 381
                                                                                                                            65 nbnnbnnbnnbnnbnnbtgcnnbnnbnnbnnbnnbnnbnnbnnbnnbnnb 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 40; DB 12; Length 114
Pred. No. 8.76e-07;
34; Mismatches 72; Indels
    Indels
  69;
    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                             55..60
/*tag- a
/note- this seque
sequence of 6, 9 o
  31;
                                                                                                                                                                                                                LT 10
Q70468 standard; DNA; 114 BP.
Q70468;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (UYNC-) UNIV NORTH CAROLINA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity 5.4%;
    Conservative
                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-176500.
US-189331.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-013416.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Fowlkes DM, Kay BK;
WPI; 94-279739/34.
P-PSDB; R65154.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  U00977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-FEB-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          30-DEC-1993;
31-JAN-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-FEB-1994;
10;
                                                                                                                                                                                                                                                                                                 05-APR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WO9418318-A
```

8 ò 요

Synthetic.

```
gggywccgagcycgaayycdchvgccgymrttthhyrrmrbnvyrdynrsdaaawyccyr 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                119 rsvkydccynachhddhyvybbbvynvhnhnncncccbnnhvchnvhbnnhrnwayvrhd 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    283 GCAGCGAGCGAGGGGCCCTGCAGCATCGTGGCGCGCGACCCCGAGGGGGCAGCAGGGGA 224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               03-MAY-1988.
30-MAR-1988.
30-MAR-1988.
30-MAR-1989.
30-MAR-1989.
30-MAR-1987.
30-MAR-1989.
40-MAR-1987.
40-MAR-1987.
40-MAR-1989.
40-MA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    343 GGCCAAAGAGGAAGAGCCCGCGCGCGCGAGGCAGGAGCAGTGCGAGGAGGGAAGAGCA 284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                77-APR-1995 (first entry)
Generic DNA sequence to generate a random TSAR peptide library.
TSAR; totally synthetic affinity reagent; synthetic; binding domain; effector domain; concateneated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Disclosure; p; English.

Random point mutations were introduced into the alpha fragment of E.coli beta-galactorsidase. The wild type sequence was obtained as a single stranded template and an oligonuclectide was hybridised to it to generate a popn of DNA molecules which terminate at all possible nucleotide positions within a specified region. The variable 3' ends generated in this way are used as primers for treverse transcriptase. Nucleotides are misincorporated by the transcriptase and the molecules are completed to forms that can be amplified and then expressed in a suitable host-vector system. The sequence covers all 176 difft base substitutions, most of which see also P88575.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
08-NoV-1990 (first entry)
asse substituted E.coli beta-galactosidase alpha-fragment.
E.coli beta galactosidase alpha-fragment; base substitutions; ss.
Escharichia coli.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                108 Others;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note= "this sequence represents 'z'; Z can be sequence of 6,9 or 12 nucleotides (see
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 1; Length 204;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         51; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11 T;
                                                                                                                                                                                                                                                                                                                                                                                                                    /*tag= a
/function=multiple cloning site
/function=multiple cloning site
/function= a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 40; DB 1; Le
Pred. No. 8.76e-07;
57; Mismatches 51.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17 G;
```

ö

ø

```
(UYNC-) UNIV NORTH CAROLINA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-FEB-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-FEB-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            05-APR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WO9418318-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       070465;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ო
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                     Tidentifying a recombinant vector library expressing fusion proteins screening a recombinant vector library expressing fusion proteins

PT screening a recombinant vector library expressing fusion proteins

PT comprising a binding domain and an effector domain

Disclosure; Page 35; 255pp; English.

C70469 is a generic DNA Asquence used to generate random TSAR peptide

C705(NNB)62(NNB)2(TGC)(NNB)14(TGC)Y. A and Y are flanking restriction

Sites (X is not the same as Y) that are not specified further. This

Sequence generates peptides that are cloverleaf in structure. Other

C705(NNB)62(NNB)2(TGC)(NNB)14(TGC)Y. A and Y are flanking restriction

Sites (X is not the same as Y) that are not specified further. This

Sequence generates peptides that are cloverleaf in structure. Other

C705(NNB)62(NNB)2(TGC)(NNB)14(TGC)Y. A and Y are flanking restriction

C706(NNB)62(NNB)2(TGC)(NNB)14(TGC)Y. A and Y are flanking at least

C707(NNB)62(NNB)62(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)160(NNB)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    595 TGCCACTCGCTCTGCGTGCAGGTGAAGGACCGCTGCGCCCCGGTCATGTCCGCCTTCGGC 654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Generic DNA sequence to generate a random TSAR petide library. TSAR; totally synthetic affinity reagent; synthetic; binding domain; reffector domain; concateneated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tgcanbanbanbanbanbanbanbanbanbtgcanbanbanbanbanbanbanban
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /*tag= a
/note= "this sequence represents '2'; 2 can be a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       anbanbtgcanbanbanbanbanbanbanbanbanbanbanbanbanb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 655 TTCCCCTGGCCCGACATGCTTGAGTGCGACCGTTTCCCCCCAGGACAACGAC 705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 39; DB 12; Length 114;
Pred. No. 2.65e-06;
32; Mismatches 71; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sequence of 6, 9 or 12 nucleotides (see comments)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4 G; 4 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           detection in a screening process. Sequence 114 BP; 0 A; 4 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ur 13
070467;
070467;
05-APR-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1.9%;
larity 7.2%; I
Conservative
                                                                                                                    30-DEC-1993; US-176500.
31-JAN-1994; US-189331.
(UYNC-) UNIV NORTH CAROLINA.
Fowlkes DM, Ray BK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-013416.
US-176500.
US-189331.
                                                                                                  US-013416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      T1600D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
                                                                                                                                                                                                                      WPI; 94-279739/34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               18-AUG-1994.
01-FEB-1994; U
01-FEB-1993; U
30-DEC-1993; U
31-JAN-1994; U
                                                                                                  01-FEB-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO9418318-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT ON THE ON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     요
8
```

```
Terentifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins

PT Generifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins

PT Comprising a binding domain and an effector domain

Disclosure, Page 35; 255pp; English.

CC 70467 is a generic DNA sequence used to generate random TSAR (Totally

CC Synthetic Affinity Reagents) peptides. This generic formula can also be

represented as follows: X(NNB) 16/TGC) (NNB) 12/(NNB) 16/TGC) (NNB) 12/(NNB) 16/TGC) (NNB) 12/(NNB) 16/TGC) (NNB) 12/(NNB) 12/(NNB) 16/TGC) (NNB) 12/(NNB) 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  198 GCCGCCTCGCCCTTCCCCGGCTCCGCTCCCTCTGCCCCCTCGGGGTCGCGCGCGCCCACGAT 257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Generic DNA sequence to generate a random TSAR petide library. TSAR; totally synthetic affinity reagent; synthetic; binding domain; effector domain; concatenated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                identifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins comprising a binding domain and an effector domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      can be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    73; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /*tag= a
/note= "this sequence represents '2'; Z
sequence of 6, 9 or 12 nucleotides (see
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 38; DB 12; Pred. No. 7.95e-06; 34; Mismatches 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   070465 standard; DNA; 114 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            30-DEC-1993; US-176500.
31-JAN-1994; US-189331.
(UNC-) UNIV NORTH CAROLINA.
FEWLKES DM, RAY BK;
WPI; 94-279739/34.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Match 1.9%;
Local Similarity 4.5%;
nes 5; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             comments)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                P-PSDB; R65150 and R65151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-013416
Fowlkes DM, Kay BK; WPI; 94-279739/34.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            U00977
                                                                                  P-PSDB; R65153
```

```
misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Synthetic.
                                                                                                                                                                                                                                                                                                                                                                ဖ
                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                g
 Cb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Discussive; were so, supplied to generate random TSAR (Totally 70465) is a generic DNA sequence used to generate random TSAR (Totally 59 thetic Affinity Reagents) peptides. This generic formula can also be corpresented as follows: X(NNB)6(TGC)(NNB)112(MNB)14(TGC)(NNB)31. X or and Y are flanking restriction sites (X is not the same as Y) that are not specified further. Other generic sequences are shown in 070466-68. Conter specific peptides generated by these generic sequences are shown in R5151-54. TSARs are concatenated heterofunctional proteins or peptides, comprising at least two functional regions - a binding domain with a finity for a ligand and a second effector peptide portion that is comprising at least two functional regions - a binding domain with a finity for a ligand and a second effector peptide portion that is comprised between the 2 domains. The oligonucleotides are also designed so that the expressed peptide contains 2 or 4 cysteine residues positioned in, or flanking, the unpredicted or variant residues. These residues confer some degree of conformational rigidity to the peptides. The TSARs or comprising a TSAR binding domain can be used in vivo to deliver a chemically or biologically active molety, eg. metal ion, radioisotope, peptide, toxin or enzyme, to the specific target or on the conformational antibodies and therefore circumvent the need correction. The TSARs are easily characterised and have designed activity allowing direct and rapid detection in a screening process.
                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Identifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins comprising a binding domain and an effector domain bisclosure; page 35, 255pp; English.

O70469 is a generic DNA sequence used to generate random TSAR peptide This generic formula can be represented as follows: X(TGC)(NNB)10-(TGC)(NNB)2(TGC)(NNB)14(TGC)Y. X and Y are flanking restriction sites (X is not the same as Y) that are not specified further. This sequence generates peptides that are cloverleaf in structure. Other generic sequences are shown in Q70465-68. Other specific peptides generated by these generic sequences are shown in R65150-54. TSARs are
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            273 CTCGCTGCTGCTCTTCCTCGCCTCGCACTGCTGCCTGGGCTCGGGCGCGCGGGCTCTT 332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Generic DNA sequence to generate a random TSAR peptide library.
TSAR; totally synthetic affinity reagent; synthetic; binding domain;
effector domain; concateneated heterofunctional protein; linker;
direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /*tag= a
/note= "this sequence represents 'Z'; Z can be a
sequence of 6,9 or 12 nucleotides (see
comments)"
                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            63 banbanbanbanbanbanbanbanbanbanbanbanbtgcanbanba 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         333 CCTCTTTGGCCAGCCCGACTTCTCCTACAAGCGCAGCAATTGCAAGCCCATC 384
                                                                                                                                                                                                                                                                                                                                                                                                               Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                              73; Indels
                                                                                                                                                                                                                                                                                                                                                                                                            Score 38; DB 12; I
Pred. No. 7.95e-06;
                                                                                                                                                                                                                                                                                                                                                                                                                                              34; Mismatches
Disclosure; Page 35; 255pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q70469 standard; DNA; 114 BP. Q70469;
                                                                                                                                                                                                                                                                                                                                                                                                            1.9%; ilarity 4.5%; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-FEB-1993; US-013416.
30-DEC-1993; US-176500.
31-JAN-1994; US-189331.
(UNIC-) UNIV NORTH CAROLINA.
FOWLKES DM, KAY BK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         07-APR-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          18-AUG-1994.
01-FEB-1994; U00977
                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 94-279739/34.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WO9418318-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
```

```
PF 18-1994; U0097.

PR 01-FEB-1994; U0097.

PR 10-FEB-1994; U0-1893.

PR 31-DEC-1993; US-18500.

PR 31-JAN-1994; US-189331.

PR 31-JAN-1994; US-189321.

PR 31-JAN-1994; US-18932.

PR 31-JAN-1994; US-18942.

PR 31-JAN-1994; US-18942.

PR 31-JAN-1994.

P
concatenated heterofunctional proteins or peptides, comprising at least two functional regions - a binding domain with affairty for a ligand and a second effector peptide portion that is chemically or biologically active. They may further comprise a linker peptide between the 2 domains. The oligonucleotides are also designed so that the expressed peptide contains 2 or 4 cysteine residues positioned in, or flanking, the unpredicted or variant residues. These residues confer some degree of conformational rigidity to the peptides. The TSARs or compsns. comprising a TSAR binding domain can be used in vivo to deliver a chemically or biologically active molety, eg. metal ion, radioiscope, peptide, toxin or enzyme, to the specific target or on the cell. They can also replace the function of macromolecules, eg. monoclonal or polyclonal antibodies and therefore circumvent the need for complex methods of hybridoma formation or in vivo antibody production. The TSARs are easily
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           540 CAGGAACTICTIGGIGICCGGGIGGCACTGCTICAIGACCAGCGGGAICCAAGCGCCGGC 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Generic DNA sequence to generate a random TSAR petide library. TSAR; totally synthetic affinity reagent; synthetic; binding domain; effector domain; concateneated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              banbanbanbanbanbanbanbanbtgcanbanbanbanbanbanbanbanananan 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      / cus "this sequence represents 'Z'; Z can be a sequence of 6, 9 or 12 nucleotides (see comments)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  480 CTGCTCCAGCACCTCCTTCATGGTCTCGTGGCCCAGCAGGTTGGGCAGC 432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            32; Mismatches 69; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 39; DB 12;
Pred. No. 2.65e-06;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4
G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                detection in a screening process.
Sequence 114 BP; 0 A; 4 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          T 16
Q70468 standard; DNA; 114 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1.9%;
larity 7.3%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q70468;
05-APR-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   55..60
/*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
```

ω

```
Userlosure; Wage 35; 259pp; Engilsh.

Oldf6 is a generic DNA sequence used to generate random TSAR (Totally Synthetic Affinity Reagents) peptides. This generic formula can also be represented as follows:X(NNB)1(TGC)(NNB)10(TGC)2(NNB)4Z(NNB)8(TGC)(NNB) or the same as Y)

That are not specified further. Other generic sequences are shown in Chart are not specified further. Other generic sequences are shown in CON466-66. Other specific peptides generated by these generic sequences are shown in R65151-54. TSARs are concatenated by these generic sequences or peptides, comprising at least two functional regions - a binding companion with affinity for a ligand and a second effector peptide portion that is chemically or biologically active. They may further comprise a linker peptide between the 2 domains. The oligonucleotides are also designed so that the expressed peptide contains 2 or 4 cysteine residues confer some degree of conformational rigidity to the peptides. The TSARs or comprising a TSAR binding domain can be used in vivo to deliver a chemically or biologically active moiety, eg. metal ion, radioisotope, peptide, toxin or enzyme, to the specific target or monoclonal or polyclonal antibodies and therefore circumvent the need for monoclonal contains and therefore circumvent the need for
confer some degree of conformational rigidity to the peptides. The TSARs or compans. comprising a TSAR binding domain can be used in vivo to deliver a chemically or bloLogically active molety, eg. metal ion, radioisotope, peptide, toxin or enzyme, to the specific target or on the cell. They can also replace the function of macromolecules, eg. monoclonal or polyclonal antibodies and therefore circumvent the need for complex methods of hybridoma formation or in vivo antibody production. The TSARs are easily characterised and have designed activity allowing direct and rapid detection in a screening process.
                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complex methods of hybridoma formation or in vivo antibody production.
                                                                                                                                                                                                                                                                                                                                                                    banbanbanbanbanbanbanbanbanbtgcanbanbanbanbanbanbanbananan 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Generic DNA sequence to generate a random TSAR-9 petide library. TSAR; totally synthetic affinity reagent; synthetic; binding domain; effector domain; concateneated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Identifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins comprising a binding domain and an effector domain Disclosure; Page 35; 255pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  рe
                                                                                                                                                                                                                                                                                               ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                            483 GGCTGCTCCACCTCCTTCATGGTCTCGTGGCCCAGCAGGTTGGCCAGC 432
                                                                                                                                                                                                                                                                                                                                                                                                                                bunbunbunbunbunbtgcnnbunbnnbunbunbunbnnbunbnnb 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note "this sequence represents 'Z'; Z can sequence of 6, 9 or 12 nucleotides (see
                                                                                                                                                                                                                                                   Length 114;
                                                                                                                                                                                                                                                 Score 38; DB 12; Length 114
Pred. No. 7.95e-06;
34; Mismatches 73; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q70466 standard; DNA; 114 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-FEB-1993; US-013416.
30-DEC-1993; US-176500.
31-JAN-1994; US-189331.
(UYNC-) UNIV NORTH CAROLINA.
FOWLKES DM, KAY BK;
                                                                                                                                                                                                                                                   1.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          comments)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             05-APR-1995 (first entry)
                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /*tag= a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  55..60
                                                                                                                                                                                                                                               Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          U00977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 94-279739/34.
P-PSDB; R65152.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-FEB-1994;
                                                                                                                                                                                                                                                                                               5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          070466;
                                                                                                                                                                                                                                                                                                                                                                                                                                63
                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8888888888888
                                                                                                                                                                                                                                                                                                                                                                                    Сp
                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A method for treating airway disease in a subject has been produced, which involves the topical administration of an essentially adenosine free antisense oligonuclectide (ON) to the airway epitheliuum of the subject. The present sequence is an antisense oligonuclectide (ON) to the airway epitheliuum of the subject. The present sequence is an antisense oligonuclectide specific for the human endothelin-1, targeted at the infliation codon. The method can be used to treat airway diseases such as cystic fibrosis, asthma, chronic obstructive pulmonary disease, bronchitis and other airway diseases characterised by an inflammatory response. By eliminating adenosine from the antisense ON, its liberation upon antisense degradation is prevented, thereby preventing adenosine induced bronchoconstriction in patients with hyper-reactive airways.
The TSARs are easily characterised and have designed activity allowing direct and rapid detection in a screening process. Sequence 114 BP; 0 A; 4 C; 4 G; 4 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   113 bbbcbgcbgbgbgbbbbtcbtgbgcbbbtbbtccbttctgbbbbbbgggbtcbbbbcc 172
                                                                                                                                                                                                513 CIGCTICATGACCAGCGGGAICCAAGCGCCGGCCTGCTCCAGCACCTCCTTCATGGTCTC 454
                                                                                                                                                            3 btgcnnbnnbnnbnnbnnbnnbnnbnnbnnbtgctgcnnbnnbnnbnnbnnnnnn 62
                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Treatment of airway diseases such as asthma - by topically applying adenosine-free antisense oligo:nucleotide to airway epithelium of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           193 CTCCGGCCGCCCTCCCCTTCCCCGGCTCCGCTCCCT-CTGCCCCCTCGGGGTCGCGCGCC
                                                                                                                       ö
                                                                                                                                                                                                                                                                              GTGGCCCAGCAGGTTGGGCAGCCGCATGTTCTGGTATTCGATGCCGTGGCAC 402
                                                                                                                                                                                                                                       63 banbanbanbanbanbanbanbtgcanbanbanbanbanbanbanbanb 114
                                                                                                                                                                                                                                                                                                                                                                                                                  Human endothelin-1 antisense oligonucleotide.
Asthma; airway epithelium; adenosine free; cystic fibrosis;
chronic obstructive pulmonary disease; bronchitis; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Chymase antisense oligonucleotide.
Asthma; airway epithelium; adenosine free; cystic fibrosis;
chronic obstructive pulmonary disease; bronchitis; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 39; DB 32; Length 178;
Pred. No. 2.65e-06;
32; Mismatches 7; Indels
                                                                               Length 114;
                                                                           Score 38; DB 12; Length 114
Pred. No. 7.95e-06;
31; Mismatches 71; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   46 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   52 C;
                                                                                                                                                                                                                                                                                                                                                         T76405 standard; DNA; 178 BP. T76405;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      T 19
T76452 standard; DNA; 190 BP.
                                                                               1.98
9.99
9.89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity 33.3%;
Matches 20; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   06-JUN-1996; U09306.
07-JUN-1995; US-474497.
(UYEC-) UNIV EAST CAROLINA.
Metzger WJ. Nyce JW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             06-JUN-1996; U09306.
07-JUN-1995; US-474497.
(UYEC-) UNIV EAST CAROLINA.
Metzger WJ, Nyce JW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0 A;
                                                                                                                                                                                                                                                                                                                                                                                               15-SEP-1997 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first entry)
                                                                                                                       Conservative
                                                                               Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   178 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Metzger WJ, Nyce
WPI; 97-051871/05.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 97-051871/05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Synthetic.
WO9640162-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     19-DEC-1996.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           16-SEP-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19-DEC-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             subject
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           T76452;
                                                                                                                                                                                                                                                                              453
                                                                                                                       Matches
    8888
                                                                                                                                                                                                g,
                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                              Сp
                                                                                                                                                                                                                                                                                                                                                             엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
```

σ

ö

```
RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          d
     88888
                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                ô
                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DATE OF THE PROPERTY OF THE PR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Tidentifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins
FT screening a recombinant vector library expressing fusion proteins
FT comprising a binding domain and an effector domain
Disclosure: Page 36: 255pp. English.

CATO470 is a generic DNA Sequence used to generate random TSAR (Totally
CATO470 is a generic DNA Sequence used to generate formula can also be
represented as follows: X(NNB)4(CAC)(NNB)4CAC)(NNB)8Z(NNB)6(CAC)(NNB)8

CATO52(NNB)Y: X and Y are flanking restriction sites (X is not the same
CATO52(NNB)Y: X and Y are flanking restriction sites (X is not the same
CATO52(NNB)Y: X and Y are flanking restriction sites (X is not the same
CATO52(NNB)Y: X and Y are flanking restriction sites (X is not the same
CATO52(NNB)Y: X and Y are flanking restriction sites (X is not the same
CATO52(NNB)Y: X and Y are flanking restriction sites (X is not the same
CATO52(NNB)Y: X and Y are flanking restriction sites (X is not the second
CATO52(NNB)Y: X and Y are flanking restriction sites (X is not they
CATO52(NNB)Y: X and Y are flanking constraint a least two functional
CATO52(NNB)Y: X and Y are flanking for a ligand and a second
CATO53(NNB)Y: X and Y are peptide between the 2 domains. The TSARS
CATO54(NNB)Y: X and Y are peptide between the 2 domains. The TSARS
CATO54(NNB)Y: X and Y are flanking domain can be used in vivo to
CATO54(NNB)Y: X and Y are flanking value also replace the function of macromolecules, eg.
CATO54(NNB)Y: X and Y are flanking and therefore circumvent the need
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1;
                                                                    Example 5; Page 40; 71pp; English.

A method for treating airway disease in a subject has been produced, which involves the topical administration of an essentially adenosine free antisense oligonucleotide (ON) to the airway epithelium of the subject. The present sequence is an antisense oligonucleotide specific for chymase, targeted at the initiation codon. The method can be used to treat airway diseases such as cystic fibrosis, asthma, chronic obstructive pulmonary disease, bronchitis and other airway diseases characterised by an inflammatory response. By eliminating adenosine from the antisense ON, its liberation upon antisense degradation is prevented, thereby preventing adenosine-induced bronchoconstriction
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Generic DNA sequence to generate a random TSAR peptide library, TSAR; totally synthetic affinity reagent; synthetic; binding domain; effector domain; concatenated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
  Treatment of airway diseases such as asthma - by topically applying adenosine-free antisense oligo:nucleotide to airway epithelium of
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 190;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           22; Indels
                                                                                                                                                                                                                                                                                                                                                                                                     36 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /*tag= a
/note= "encoded by Z (see comments)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pred. No. 2.65e-06;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 32;
                                                                                                                                                                                                                                                                                                                                                                                                58 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           31; Mismatches
                                                                                                                                                                                                                                                                                                                                                                       in patients with hyper-reactive airways.
Sequence 190 BP; 1 A; 41 C; 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        267 CCCTGGCTGCTGCTGCTCTTCCTCGC 296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    88 gbggbbggcbgcbtcttcccbgbgbggc 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 39;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q70470 standard; DNA; 114 BP
Q70470;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            30-DEC-1993; US-176500.
31-JAN-1994; US-189331.
(UNC-) UNIV NORTH CAROLINA.
FOWLKES DM, KAY BK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      1.9%;
                                                                                                                                                                                                                                                                                                                                                                                                     1. A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-013416.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            . 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity
nes 36; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           U00977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 94-279739/34.
0B; R58378.
οţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  18-AUG-1994.
01-FEB-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-FEB-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10-APR-1995
Generic DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO9418318-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                     Seguence
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  P-PSDB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
```

```
Terbit Angolderies or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins comprising a binding domain and an effector domain proteins a binding domain and an effector domain proteins a binding domain and an effector domain proteins a peneric DNA sequence used to generate random TSAR (Totally Synthetic Affilinty Reagents) peptides. This generic formula can also be spresented as follows: X(NNB)[(GAC)(NNB)(GAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)(CAC)(NNB)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       623 ACCGCTGCGCCCCGGTCATGTCCGCCTTCGGCTTCCCCTGGCCCGACATGCTTGAGTGCG 682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           588 CCAGCCATGCCACTCGCTCTGCGTGCAGGTGAAGGACCGCTGCGCCCCGGTCATGTCCGC 647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Generic DNA sequence to generate a random ISAR peptide library. TSAR; totally synthetic affinity reagent; synthetic; binding domain; effector domain; concatenated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                           3 bnnbnnbnnbcacnnbnnbnnbnnbcacnnbnnbnnbnnbnnbnnbnnbnnbnnnnn 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5 aconbunbonbonbonbonbonbonbonbonboaconbcaconbonnonnonnon 64
                                        illy characterised and have designed rapid detection in a screening process.
                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            activity allowing direct and rapid detection in a screening process. Sequence 114 BP; 6 A; 12 C; 0 G; 0 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
for complex methods of hybridoma formation or in vivo antibody production. The TSARs are easily characterised and have designs activity allowing direct and rapid detection in a screening pro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                           ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 12; Length 114;
                                                                                                                                                                                                                      Length 114;
                                                                                                                                                                                                                      Score 36; DB 12; Length 114 Pred. No. 6.96e-05; 29; Mismatches 68; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                63 bnnbnnbnnbnnbnnbcacnnbnnbnnbnnbnnbnnbnnbcacca 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     648 CTTCGGCTTCCCCTGGCCCGACATGCTTGAGTGCGACCGTTTCCCCCA 695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  29; Mismatches 69; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 36; DB 12;
Pred. No. 6.96e-05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note- "encoded by Z"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
55..60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           18-AUG-1994.

01-FEB-1994; U00977.

01-FEB-1993; US-013416.

30-DEC-1993; US-176500.

31-7An-1994; US-189331.

(UYNC-) UNIV NORTH CAROLINA.

FOWIKES DM, KAY BK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 1.8%;
Best Local Similarity 10.9%;
Matches 12; Conservative
                                                                                                                                                                                                                 Query Match 1.8%;
Best Local Similarity 10.2%;
Matches 11; Conservative
                                                                                                                                     5 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q70472;
10-APR-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JT 21
Q70472 standard; DNA; 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Fowlkes DM, Kay BK;
WPI; 94-279739/34.
P-PSDB; R58383.
                                                                                                                                     114 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WO9418318-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Synthetic.
                                                                                                                                     Seguence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
```

ö

/*tag= a /note= "encoded by Z" Location/Qualifiers 55..60

/*tag=

misc_feature

Synthetic.

US-013416. US-176500.

U00977

01-FEB-1994; 01-FEB-1993; 30-DEC-1993;

18-AUG-1994

Q70473 standard; DNA; 114 BP

070473;

g ô

```
10-APR-1995 (first entry)
Generic DNA sequence to generate a random TSAR peptide library.
TSAR, totally synthetic affinity reagent; synthetic; binding domain;
effector domain; concatenated heterofunctional protein; linker;
direct; rapid; detection; screening; treatment; generic; ss.
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Disclosure; were 55, 202pp; augustan.

Oldfolis a generic DNA sequence used to generate random TSAR (Totally Contract Affinity Reagents) peptides. This generic formula can also be comprehented as follows: X(NNB)16(TGC)(NNB)16(TGC)(NNB)18(TGC)(NNB)18.

Cand Y are flanking restriction sites (X is not the same as Y) that are not specified further. Other generic sequences are shown in Q70466-68.

Cher specified further other generic sequences are shown in Q70466-68.

Cher specified further of energied by these generic sequences are shown in G7151-54. TSARs are concatenated by these generic sequences are shown in G704151-54. TSARs are concatenated by these generic sequences are shown in G704151-54. TSARs are concatenated by these generic specifies or peptides.

Comprising at least two functional regions - a binding domain with a fightly for a lightly for a lightly active. They may further comprise a linker opeptide between the 2 domains. The oligonucleotides are also designed so that the expressed peptide contains 2 or 4 cysteine residues sociationed in, or flanking, the unpredicted or variant residues. These residues confer some degree of conformational rigidity to the peptides. The TSARs confers and also replace the function of macromolecules, eg.

Call. They can also replace the function of macromolecules, eg.

Complex methods of hybridoma formation or in vivo antibody production.

Call They are also replace the function or in vivo antibody production.

Call They are also replace the function or in vivo antibody production.

Call They are also replace the function or in vivo antibody production.

Call They are also replace the function or in vivo antibody production.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                 Generic DNA sequence to generate a random TSAR petide library. TSAR; totally synthetic affinity reagent; synthetic; binding domain; effector domain; concateneated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   P-SDB: R65153.

Identifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins comprising a binding domain and an effector domain Disclosure; Page 35; 255pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                    sequence represents 'Z'; Z can be 5, 9 or 12 nucleotides (see
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;
0
               65 nbnnbnnbnnbnnbcacnnbnnbnnbnnbcaccacnnbnnbnnb 114
                                             683 ACCGTITCCCCCAGGACAACGACCTTTGCATCCCCCTCGCTAGCAGCGAC 732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       direct and rapid detection in a screening process. Sequence 114\ \mathrm{BP}; 0 A; 2 C; 2 G; 2 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pred. No. 6.96e-05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              34; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 36;
                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                           /*tag= a
/note= "this seg
sequence of 6, 9
comments)"
                                                                                                                                      7 22
Q70467 standard; DNA; 114 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-FEB-1994; U00977.
01-FEB-1993; US-013416.
30-DEC-1993; US-176500.
31-JAN-1994; US-189331.
(UINC-) UNIV NORTH CAROLINA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1.8%;
3.6%;
                                                                                                                                                                                                             05-APR-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                    9.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 94-279739/34.
                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WO9418318-A
18-AUG-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Fowlkes DM
                                                                                                                                                                                                                                                                                                                                      Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                      070467;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
```

```
Terbib, Rossie, Rossie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 cacnnbnnbcacnnbnnbnnbnnbnnbnnbnnbnnbnnbcacnnbnnbcacnnbnnnnn 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Generic DNA sequence to generate a random TSAR peptide library.
TSAR; totally synthetic affinity reagent; synthetic; binding domain;
effector domain; concatenated heterofunctional protein; linker;
direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61 cacnnbnnbnnbnnbnnbcacnnbnnbnnbnnbcacnnbcacnnbnnbnnb 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    322 CGCGGGCTCTTCCTCTTTGGCCAGCCCGACTTCTCCTACAAGCGCAGCAATTGC 375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                71; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 34; DB 12; I
Pred. No. 5.87e-04;
28; Mismatches 71;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 detection in a screening process.
Sequence 114 BP; 8 A; 16 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q70471 standard; DNA; 114 BP. Q70471;
31-JAN-1994; US-189331.
(UYNC-) UNIV NORTH CAROLINA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 1.7%;
Best Local Similarity 13.2%;
Matches 15; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     10-APR-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            55..60
/*tag=
                                                                                    Fowlkes DM, Kay BK; WPI; 94-279739/34.
                                                                                                                                                                    P-PSDB; R58393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
```

618 CACCTGCACGCAGAGCGAGTGGCATGGTGGTCTCGTCTAGGTCATCGAGGCAGAC 559

558 GGGGGGGAAGAGCGAGCACAGGAACTICITGGIGICCGGGIGGCACIGCIIC 507

g

g

RESULT

```
R65150 and R65151.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Terbush Nosaly.

Identifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins

PT screening a binding domain and an effector domain

Disclosure: Page 36; 255pp; English.

COMA71 is a generic DNA Sequence used to generate random TSAR (Totally CAO) With the Same as follows: X(NBB)6(CAC)(NNB)2CAC) (NNB)2CAC) (N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    348 CGACTICICCTACAAGCGCAGCAATIGCAAGCCCAICCCGGCCAACCIGCAGCIGIGCCA 407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3 bnnbnnbnnbnnbcacnnbnnbnnbnnbnnbnnbnnbnnbnnbnnbcacnnbnnnnca 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Generic DNA sequence to generate a random TSAR petide library. ISAR: totally synthetic affinity reagent; synthetic; binding domain; effector domain; concateneated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     28; Mismatches 70; Indels 0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /*tag= a
//note= "this sequence represents '2'; Z can be
sequence of 6, 9 or 12 nucleotides (see
comments)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           408 CGGCATCGAATACCAGAACATGCGGCTGCCCAACCTGCGCCACGAGACC 459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     63 cnnbnnbnnbcaccacnnbnnbnnbnnbcacnnbcacnnbnnb
/note= "encoded by Z (see comments)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 34; DB 12; Pred. No. 5.87e-04;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-FEB-1993; US-013410
01-FEB-1993; US-013410
30-DEC-1993; US-176500
31-JAN-1994; US-189331
(UYNC-) UNIV NORTH CAROLINA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      070465 standard; DNA; 114 BP
                                                                              30-DEC-1993; US-176500.
31-JAN-1994; US-189331.
(UYNC-) UNIV NORTH CAROLINA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 1.7%;
Best Local Similarity 12.5%;
Matches 14; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     05-APR-1995 (first entry)
                                                                  US-013416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          55..60
                                                                                                                                   Kay BK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      18-AUG-1994.
01-FEB-1994; U00977.
                                                 T000D
                                                                                                                               Fowlkes DM, Kay Br
WPI; 94-279739/34.
                                                                                                                                                                P-PSDB; R58379
                                              01-FEB-1994;
                                                                01-FEB-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO9418318-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       070465;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ô
```

```
PT FYDIA MODITAL AND ADDITAL WETCHING A LIGANG LUB PT THERLIFYING PROTECTIONS OF PEPTING AND ADDITAL WETCHING A BY SCREENING A EXCOMPLIANT VECTOR LIBRARY EXPRESSING FURSION PT COMPATISING A BAINGING ADMAIN and an effector domain proteins DISCLOSURE; PAGE 35, 255pp; English.

CC 070465 is a generic DNA Sequence used to generate random TSAR (Totally CC O70465 is a generic DNA Sequence seed to generate formula can also be represented as follows: X(NNB) 6/TGC)(NNB) 114(TGC)(NNB) 3Y. X and Y are flanking restriction SIGES (XINB) 114(TGC)(NNB) 3Y. A and Y are flanking restriction SIGES (XINB) 114(TGC)(NNB) 3Y. A concept specified further. Other generic sequences are shown in CNAFS are concatenated by these generic sequences are shown in CR SE5151-54. TSARS are concatenated heterofunctional proteins or peptides, comprising at least two functional regions - a binding domain with a first sequence at ligand and a second effector peptide portion that is chemically or biologically active. They may further comprise a linker of peptide between the 2 domains. The Oilgonucleotides are also designed conformational rigidity to the peptides. The TSARS or compers of morrolicated or variant residues. These residues confer some degree of conformational rigidity to the peptides. The TSARS or compers and also replace the function of macromolecules, eg.

CC deliver a chemically or biologically active molety, eg. metal ion, calloisotope, peptide, toxin or enzyme, to the specific target or on the color or monoclonal or polyclonal antibodies and therefore circumvent the need for componex methods of hybridoma formation or in vivo antibody production. The TSARs are easily characterised and have designed activity allowing direct and rapid detection in a screening process. Sequence 114 BP; 0 A; 2 C; 2 G; 2 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Identifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins comprising a binding domain and an effector domain Disclosure; Page 36, 255pp; English.

070471 is a generic DNA sequence used to generate random TSAR (Totally Synthetic Affinity Reagents) peptides.This generic formula can also be represented as follows: X(NNB)6(CAC)(NNB)9(CAC)(NNB)Z(CAC)(NNB)4(CAC)2-(NNB)6(CAC)(NNB)(CAC)2 and Y are flanking restriction sites
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            630 GCAGCGGTCCTTCACCTGCACGCAGAGCGAGTGGCATGGCTGGATGGTCTCGTCTAGGTC 571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Generic DNA sequence to generate a random TSAR peptide library. TSAR; totally synthetic affinity raequent; synthetic; binding domain; effector domain; concatenated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3 bnabanbanbanbanbtgcanbanbanbanbanbanbanbanbanbanbanbanbannan 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                570 ATCGAGGCAGACGGGGGGGGAAGAGCGAGCACAGGAACTTCTTGGTGTCCGGG 519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 34; DB 12; Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pred. No. 5.87e-04;
33; Mismatches 75; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /*tag= a
/note= "encoded by 2 (see comments)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-FEB-1993; US-013416.
30-DEC-1993; US-013416.
31-JAN-1994; US-189331.
(UYNC-) UNIV NORTH CAROLINA.
FOWINCS DM, KAY BK;
WPI: 94-279739/34.
P-PSDB; R58379.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             T 26
Q70471 standard; DNA; 114 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1.7%;
Similarity 3.6%;
4; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 070471;
10-APR-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           18-AUG-1994.
01-FEB-1994; U00977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO9418318-A.
```

```
Tidentifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins
FT screening a recombinant vector library expressing fusion proteins
FT comprising a binding domain and an effector domain
Disclosure; Page 36; 255pp; English.

COMATO is a generic DNA Sequence used to generate random TSAR (Totally
Disclosure; Page 36; 25pp; English.

COTOSI (NEB) 12 And 12 And
generated by this and other generic sequences (Q70470-73) have invariant historiac sessitues incorporated into variant sequences. TSARs are inscriptorated into variant sequences. TSARs are concatenated heterofunctional proteins or peptides, comprising at least two functional regions - a binding domain with affinity for a ligand and a second effector peptide portion that is chemically or biologically active. They may further comprise a linker peptide between the 2 domains. The TSARs or compsns. comprising a TSAR binding domain can be used in vivo to deliver a chemically or biologically active moiety, eg. metal in, radioisotope, peptide, toxin or enzyme, to the specific target or monoclonal or polyclonal antibodies and therefore circumvent the need for complex methods of hybridoma formation or in vivo antibody activity allowing direct and rapid detection in a screening process. Sequence 114 BP; 7 A; 14 C; 0 G; 0 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                070470;
10-APR-1995 (first entry)
Generic DNA sequence to generate a random TSAR peptide library.
TSAR: totally synthetic affinity reagent; synthetic; binding domain;
TSAR: concatenated heterofunctional protein; linker;
direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9 bnnbnnbnnbcacnnbnnbnnbnnbnnbnnbnnbnnbcacnnbnnnnncacnnbnn 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   °;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 34; DB 12; Length 114
Pred. No. 5.87e-04;
25; Mismatches 59; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note= "encoded by 2 (see comments)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1089 CITCIGCCACCGCTICACCGAGGIGAICACCAGCICCC 1052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    bnnbnnbcaccacnnbnnbnnbnnbnnbcacnnbc 106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-FEB-1994; U00977.
01-FEB-1993; US-013416.
30-DEC-1993; US-176500.
31-JAN-1994; US-189331.
(UYNC-) UNIV NORTH CAROLINA.
FOWIRES DM, RAY BK;
WPI: 94-279739/34.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q70470 standard; DNA; 114 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1.7%;
Local Similarity 14.3%;
nes 14; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              55..60
/*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO9418318-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TIND SOLVE S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Сp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    硆
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Example 5; Page 39; 71pp; English.

A method for treating airway disease in a subject has been produced, which involves the topical administration of an essentially adenosine free antisense oligonucleotide (ON) to the airway epithelium of the subject. The present sequence is an antisense oligonucleotide specific for the substance P, targeted at the initiation codon. The method can be used to treat airway diseases such as cystic fibrosis, asthma, chronic obstructive pulmonary disease, bronchitis and other airway diseases characterised by an inflammatory response. By eliminating adenosine from the antisense ON, its liberation upon antisense degradation is prevented, thereby preventing adenosine-induced bronchoconstriction in patients with hyper-reactive airways. Sequence 250 BP; 1 A; 64 C; 70 G; 65 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  618 CACCTGCACGCAGAGCGAGTGGCATGGCTGGATGGTCTCGTCTAGGTCATCGAGGCAGAC 559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          94 ggbccbgtbbttcbgbtcbttggctcctbtttcttctgcbbbcbgctgbgtggbgbc 153
                                                                                                                                                                                                                                                                                                                                            3 bnnbnnbnnbcacnnbnnbnnbnnbcacnnbnnbnnbnnbnnbnnbnnbnnbnnnnnn 62
                                                                                                                                                                                                                                                                       Gaps
for complex methods of hybridoma formation or in vivo antibody production. The TSARs are easily characterised and have designed activity allowing direct and rapid detection in a screening process. Sequence 114 BP; 5 A; 10 C; 0 G; 0 T:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Treatment of airway diseases such as asthma - by topically applying adenosine-free antisense oligo:nucleotide to airway epithelium of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                15-SEP-1997 (first entry) Human neutrophil elastase (medullasin) antisense oligonucleotide. Asthma, airway epithelium; adenosine free; cystic fibrosis; chronic obstructive pullmonary disease; bronchitis; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Substance P antisense oligonucleotide.
Asthma; airway epithelium; adenosine free; cystic fibrosis;
chronic obstructive pulmonary disease; bronchitis; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 1.7%; Score 34; DB 32; Length 250; Best Local Similarity 38.1%; Pred. No. 5.87e-04; Matches 32; Conservative 27; Mismatches 25; Indels
                                                                                                                                                                                                     Length 114;
                                                                                                                                                                                                                                                                       29; Mismatches 68; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGGGGCGAAGAGCGAGCACAGGAACTICTIGGTGTCCGGGTGGCAC 513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   63 bnnbnnbnnbnnbcacnnbnnbnnbnnbnnbnnbnnbcac 108
                                                                                                                                                                                              Score 34; DB 12; 1 Pred. No. 5.87e-04;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 154 bbgbbbbbgbctgccbbggccbc 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 331 TTCCTCTTTGGCCAGCCCGACTTC 354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .r 29
T76274 standard; DNA; 317 BP.
T76274;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   06-JUN-1996; U09306.
07-JUN-1995; US-474497.
(VYEC.) UNIV EAST CAROLINA.
Metzger WJ. Nyce JW;
WPI; 97-051871/05.
                                                                                                                                                                                              1.78;
8.58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     16-SEP-1997 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   T 28
T76438 standard; DNA; 250
                                                                                                                                                                                                                                                                          9; Conservative
                                                                                                                                                                                                                                      Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Synthetic.
WO9640162-A1.
19-DEC-1996.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19-DEC-1996.
                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            subject
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     T76438;
                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
ID 177
AC 177
DT 15
DE HU
KW AS
KW CS
OS SY
PN WC
PD 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULTAND MEN WAS A SECOND TO THE SECOND MEN WAS A SECOND TO THE SECOND MEN WAS A SECOND TO THE SECOND MEN WE WERE SECOND TO THE SECOND TO THE
                     ប្បប្បជ្ជ
                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
```

```
175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               _ဗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               174 cc
                                                                                                                                                                                                                                                                                                                                                                                                                                T76405;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                                                                                                                               ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ďΩ
    8888888888888888
                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                    subject

Scaling 5 Page 33; 71pp; English.

Calling 5 Page 33; 71pp; English.

A method for treating airway disease in a subject has been produced, which involves the topical administration of an essentially adenosine free antisense oligonucleotide (ON) to the airway epithelium of the free antisense oligonucleotide specific conclusions.

Cauch as cystic faptorial elastase (medullash), targeted at the initiation codon. The method can be used to treat airway diseases conclusions as cystic fibrosis, asthma, chronic obstructive pulmonary disease.

Concontitis and other airway disease characterised by an inflammatory response. By eliminating adenosine from the antisense ON, its liberation componentisense degradation is prevented, thereby preventing adenosine connections.

Concording the following from the antisense on the substance of induced bronchoconstriction in patients with hyper-reactive airways.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Identifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins comprising a binding domain and an effector domain binding a binding domain and an effector domain of the screening a page 36; 255p; English.

070472 is a generic DNA sequence used to generate random TSAR (Totally Synthetic Affinity Reagents) peptides.This generic formula can also be represented as follows: X(NNB)(CAC)(NNB)11(CAC)(NNB)(CAC)(NNB)2X(NNB)6-(CAC)(NNB)5(CAC)2(NNB)4. X and Y are flanking restriction sites generated by this and other generic sequences (070470-73) have invariant histidine residues incorporated into variant sequences. TSARs are
                                                                                                                                                                                                                                                                                                                                                         ï
                                                                                                                                                                                                                                                                                                                                                                                                              193 crecescencecerrecesecreses are 152
                                                                                                                                                                                                                                                                                                                                                                                                                                               145
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Generic DNA sequence to generate a random TSAR peptide library.
TSAR; totally synthetic affinity reagent; synthetic; binding domain;
effector domain; concatenated heterofunctional protein; linker;
direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                      98
                                                                       Treatment of airway diseases such as asthma - by topically applying adenosine-free antisense oligo:nucleotide to airway epithelium of
                                                                                                                                                                                                                                                                                                                                                       28; Mismatches 48; Indels 1; Gaps
                                                                                                                                                                                                                                                                                                                                                                                      ctcccbggbccbcccgcbccgcgggbcgtttbcbttcgccbcgcbgtgcgcggccgbcb
                                                                                                                                                                                                                                                                                                                                                                                                                                           87 tgbc-gbbgttgggcgcbbtcbggggtggcgcgcbgbgtggcctccgcgcbgctgcbgg
                                                                                                                                                                                                                                                                                                                            DB 32; Length 317;
                                                                                                                                                                                                                                                                                                                           Score 35; DB 32;
Pred. No. 2.03e-04;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /*tag= a
/note= "encoded by 2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           30-DEC-1993; US-176500.
31-JAN-1994; US-189331.
(UYNC.) UNIV NORTH CAROLINA.
FOWLKES DM. KAY BK;
WPI: 94-279739/34.
P-PSDB; R58383.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BP.
06-JUN-1996; U09306.
07-JUN-1995; US-474497.
(UYEC-) UNIV EAST CAROLINA.
MPLZGEL WJ, NYCE JW;
WPI; 97-051871/05.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      146 gbcbccbtgbbgggccbc 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 313 GGCTCGGCGCGCGCTC 330
                                                                                                                                                                                                                                                                                                                                       Best Local Similarity 44.2%;
Matches 61; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          J 30
Q70472 standard; DNA; 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-013416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          55..60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  18-AUG-1994.
01-FEB-1994; U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10-APR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WO9418318-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Synthetic.
                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        070472;
                                                                                                                                                                                                                                                                                                                                                                                   27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ga
                                                                                                                                                                                                                                                                                                                                                                                                                                           qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                õ
```

```
Subject Claim 5; Page 38; 71pp; English.

Claim 5; Page 38; 71pp; English.

Claim 5; Page 38; 71pp; English.

A method for treating airway disease in a subject has been produced, which involves the topical administration of an essentially adenosine free antisense oligonucleotide (ON) to the airway epithelium of the creat inspects sequence is an antisense oligonucleotide specific comploct. The present sequence is an antisense oligonucleotide specific compethod on be used to treat airway diseases such as cystic fibrosis, asthma, ohronic obstructive pulmonary disease, bronchitis and other calrway diseases characterised by an inflammatory response. By eliminating adenosine from the antisense ON, its liberation upon antisense degradation is prevented, thereby preventing adenosine.

Confidence bronchoconstriction in patients with hyper-reactive airways.
concatenated heterofunctional proteins or peptides, comprising at least two functional regions - a binding domain with affinity for a ligand and a second effector peptide portion that is chemically or biologically active. They may further comprise a linker peptide between the 2 domains. The TSARs or composins. comprising a TSAR binding domain can be used in vivo to deliver a chemically or biologically active moiety, eg. metal ion, radioisotope, peptide, toxin or enzyme, to the specific target or on the cell. They can also replace the function of macromolecules, eg. monoclonal or polyclonal antibodies and therefore circumvent the need for complex methods of hybridoma formation or in vivo antibody production. The TSARs are easily characterised and have designed activity allowing direct and rapid detection in a screening process. Sequence 114 BP; 6 A; 12 C; 0 G; 0 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           114 bbcbgcbgbgbgbbbtcbtgbgcbbtbbtccbttctgbbbbbbbgggbtcbbbbbcct 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           203 GGCGCCGGAGTTCGAGCTTGTCCCGGGCCCGCTCTTTCGCTGGGGTGCGACTCGGGGCC 144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5 aconbonbonbonbonbonbonbonbonbonboaconbcaconboaconbonbonbonbo 64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Metager WJ, Nyce JW; WPI; 97-051871/05. Treatment of airway diseases such as asthma - by topically applying adenosine-free antisense oligo:nucleotide to airway epithelium of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1084 GCCACCGCTTCACCGAGGTGATCACCAGCTCCCCACCCTGTTTCTGTCCC 1035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Asthma, airway epithelium, adenosine free; cystic fibrosis; chronic obstructive pulmonary disease; bronchitis; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      65 nbnnbnnbnnbnnbcacnnbnnbnnbnnbcaccacnnbnnbnnbnnb 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 178;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pred. No. 4.74e-03;
30; Mismatches 15; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 32; DB 12; Length 114;
Pred. No. 4.74e-03;
29; Mismatches 71; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15-SEP-1997 (first entry)
Human endothelin-1 antisense oligonucleotide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MOyber...
19-DEC.
06-JUN-1996; U09306.
07-JUN-1995; US-474497.
(UYEC-) UNIV EAST CAROLINA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  T76405 standard; DNA; 178 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ouery Match 1.6%;
Best Local Similarity 9.1%;
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1.68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity 27.4%;
nes 17; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WÔ9640162-A1.
```

```
Nyce JW;
                                                                                                                                                                                                                                                                                                                                                                                                                                      96 CGGIGICCCGC 106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 06-JUN-1996; U09306.
                                                                                                                                                                                                                                                                                                                                                                                       68 ggbbcgcbggb 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO9640162-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Synthetic.
WO9640162-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Metzger WJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19-DEC-1996
                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   subject
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     T76452;
                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
   ပ္ပင္တ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Example 5: Page 28; 71pp; English.

A method for treating airway disease in a subject has been produced, which involves the topical administration of an essentially adenosine free antisense oligonucleotide (ON) to the airway epithelium of the subject. The present sequence is an antisense oligonucleotide specific for the human IL3 receptor, targeted at the initiation codon. The method can be used to treat airway diseases such as cystic fibrosis, asthma, chronic obstructive pulmonary disease, bronchitis and other airway diseases characterised by an inflammatory response. By eliminating adenosine from the antisense ON, its liberation upon antisense degradation is prevented, thereby preventing adenosine-induced
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A method for treating alrayd disease in a subject has been produced, which involves the topical administration of an essentially adenosine free antisense oligonuclectide (ON) to the airway epithelium of the subject. The present sequence is an antisense oligonuclectide specific for the substance P receptor, targeted at the initiation codon. The method can be used to treat airway diseases such as cystic fibrosis, asthma, chronic obstructive pulmonary disease, bronchitis and other airway diseases characterised by an inflammatory response. By eliminating adenosine from the antisense ON, its liberation upon antisense degradation is prevented, thereby preventing adenosine-induced bronchoconstriction in patients with hyper-reactive airways.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       62 GCGCGGGCTTGCAGCGCCTCGCCCGGGTCTTCCTCCCGGTTCTCCCCCAG 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2 gctbbggbtgbtccbcbtcbccbcgttgcccbccbcbgbggtcbccbcbbtgbccgtg 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Treatment of airway diseases such as asthma - by topically applying adenosine-free antisense oligo:nucleotide to airway epithelium of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Treatment of airway diseases such as asthma - by topically applying adenosine-free antisense oligo:nucleotide to airway epithelium of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   776170;
12-SEP-1997 (first entry)
Human IL3 receptor antisense oligonucleotide.
Asthma; airway epithelium; adenosine free; cystic fibrosis;
Chronic obstructive pulmonary disease; bronchitis; interleukin; ss.
                                                                                                 Substance P receptor antisense oligonucleotide.
Asthma: airway epithelium; adenosine free; cystic fibrosis;
chronic obstructive pulmonary disease; bronchitis; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 32; Length 264;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pred. No. 4.74e-03;
26; Mismatches 25; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Example 5; Page 40; 71pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      122 CCGCCGGCTGCCAGCTTTTCGG 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 62 tbggcbgctgcccbbbggbcbb 83
                                                                                                                                                                                                                                                                       19-DEC-1996.
06-JUN-1996, U09306.
07-JUN-1995; US-474497.
(UYEC.) UNIV EAST CAROLINA.
Metzger WJ, NYCE JW:
WPI; 97-051871/05.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       19-DEC-1996.
06-JUN-1996; U09306.
07-JUN-1995; US-474497.
(UYEC.) UNIV EAST CAROLINA.
Metzger WJ, Nyce JW;
WPI; 97-051871/05.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1.6%;
Local Similarity 37.8%;
les 31; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            T76170 standard; DNA; 88 BP.
                                                             16-SEP-1997 (first entry)
standard; DNA; 264
                                                                                                                                                                                                          Synthetic.
WO9640162-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO9640162-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             subject
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             subject
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT TO THE PROPERTY OF THE 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Вb
NAME OF THE PART O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
```

```
A method for treating airway disease in a subject has been produced, which involves the topical administration of an essentially adenosine free antisense oligonuclectide (ON) to the airway epithelium of the subject. The present sequence is an antisense oligonuclectide specific for the human monocyte derived neutrophil chemotactic factor, targeted at the initiation codon. The method can be used to treat airway diseases such as cystic fibrosis, asthma, chronic obstructive pulmonary diseases bronchitis and other airway diseases characterised by an inflammatory response. By elimination adenosine from the antisense on, its libration upon antisense degradation is prevented, thereby preventing adenosine-induced bronchoconstriction in patients with hyper-reactive airways. Sequence 168 BP; 0 A; 38 C; 45 G; 41 T;
                                                                                                                                                                        ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  63 gcbbbbctgcbccttcbcbcbgbgctgcbgbbbtcbggbbggctgccbbgbgbgbccbcgg 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                   8 bebgggebggggggbtcbggbgcbgcgtgbgccbbbggbggbccbtcgggbbcgcbgctcc 67
                                                                                                                                                                                                                                                                         31 GCTCCCCGGGTCGGAGCCCCCGGAGCTGCGCGGGGCTTGCAGCGCCTCGCCCGGGCT 90
                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI: 97-051871/05.
Treatment of airway diseases such as asthma - by topically applying
adenosine-free antisense oligo:nucleotide to airway epithelium of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
bronchoconstriction in patients with hyper-reactive airways. Sequence 88 BP; 0 A; 22 C; 36 G; 5 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15-SEP-1997 (first entry)
Human MDNCF antisense oligonucleotide.
Stshma: airway epithelium; adenosiine free; cystic fibrosis;
chronic obstructive pulmonary disease; bronchitis;
monocyte-derived neutrophil chemotactic factor; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16-SEP-1997 (first entry)
Chymase antisense oligonucleotide.
Asthma; airway epithelium; adenosine free; cystic fibrosis; chronic obstructive pulmonary disease; bronchitis; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 31; DB 32; Length 168; Pred. No. 1.32e-02; 29; Mismatches 28; Indels
                                                                                             Score 30; DB 32; Length 88;
Pred. No. 3.65e-02;
20; Mismatches 17; Indels
                                                                                                Length 88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     123 ccbgcttggbbgtcbtgtttbcbcbcb 149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       T 35
T76452 standard; DNA; 190 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    T76270 standard; DNA; 168 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
1.5%;
Best Local Similarity 34.5%;
Matches 30; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19-DEC-1996, 06-JUN-1996; U09306. 07-JUN-1995; US-474497. (UYEC-) UNIV EAST CAROLINA.
                                                                                                1.5%;
                                                                                                                               Local Similarity 46.5%;
les 33; Conservative
```

Page

```
(first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /number= 2
476..479
/*tag= d
501..789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /*tag= b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        04-DEC-1992.
29-MAY-1991; 152169.
29-MAY-1991; JP-152169.
(TELJ ) FELZIN LTD.
WPI; 93-022708/03.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'number-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 443..448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       406.410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N71302;
30-APR-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         caat_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tata_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 caat_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_rna
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_rna
                                                                                                                                                                          88
                                                                             Сp
                                                                                                                           g
                                                                                                                                                                                                                                                                            쉱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A PLANTER LANDER LANDER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A method for treating alrway disease in a subject has been produced, which involves the topical administration of an essentially adenosine free antisense oligonucleotide (ON) to the airway epithelium of the subject. The present sequence is an antisense oligonucleotide specific for the human neutrophil elastase (medullasin), targeted at the initiation codon. The method can be used to treat airway diseases such as cystic fibrosis, asthma, chronic obstructive pulmonary disease, bronchtis and other airway diseases. Characterised by an inflammatory response. By eliminating adenosine from the antisense ON, its liberation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                         A method for treating alray disease in a subject has been produced, which involves the topical administration of an essentially adenosine free antisense oligonucleotide (ON) to the airway epithelium of the subject. The present sequence is an antisense oligonucleotide specific for chymase, targeted at the initiation codon. The method can be used to treat airway diseases such as cystic fibrosis, asthma, chronic obstructive pulmonary diseases bronchitis and other airway diseases characterised by an inflammatory response. By eliminating adenosine from the antisense ON, its liberation upon antisense degradation is prevented, thereby preventing adenosine-induced bronchoconstriction
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                upon antisense degradation is prevented, thereby preventing adenosine-induced bronchoconstriction in patients with hyper-reactive alrways. Sequence 317 BP; 0 A; 112 C; 118 G; 36 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       79 ggccgbcbtgbcgbbgttgggcgcbbtcbgggtggcgccgcbgbbgtggcctccgcgcbg 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      28 bbgbbccctgbtbctcbccbgcttcbgctctggbgcbcbbgbgbbgbgcbgcbgggggb 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pred. No. 1.32e-02;
23; Mismatches 16; Indels 1; Gaps
                                                                                                  Treatment of airway diseases such as asthma - by topically applying adenosine-free antisense oligo:nucleotide to airway epithelium of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Treatment of airway diseases such as asthma - by topically applying adenosine-free antisense oligo:nucleotide to airway epithelium of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Human neutrophil elastase (medullasin) antisense oligonucleotide.
Asthma; airway epithellum; adenosine free; cystic fibrosis;
chronic obstructive pulmonary disease; bronchitis; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 317;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 31; DB 32; Length 190;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 30; DB 32; Length 317
Pred. No. 3.65e-02;
31; Mismatches 74; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           58 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 patients with hyper-reactive airways. guence 190 BP; 1 A; 41 C;
                                                                                                                                                                       Example 5: Page 40; 71pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claím 5; Page 33; 71pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 T76274 standard; DNA; 317 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19-DEC-1996.
06-JUN-1996; U09306.
07-JUN-1995; US-474497.
(UYEC-) UNIV EAST CAROLINA.
          (UYEC-) UNIV EAST CAROLINA. Metzger WJ, Nyce JW:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 1.5%;
Best Local Similarity 41.0%;
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Local Similarity 42.9%;
Matches 30; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15-SEP-1997 (first entry)
07-JUN-1995; US-474497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Nyce JW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 120 TGGGGCGCGG 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                88 gdggdgggg 97
                                                                     WPI; 97-051871/05.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7-051871/05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO9640162-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Metzger WJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Seguence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            subject
                                                                                                                                                                                                                                                                                                                                                                                                                                                      4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      硆
```

```
139 ctgcbgggbcbccbtgbbgggccbcgcgtggggccgcgctcgccggcccccbcbbtctc 198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     219 gcwydyyccbgggtgyrybccytgygtycgsgarrryrrynnytcbmgntgytgggyrgc 278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            279 gctbacycccacgstygcyrcyagrrayvbyavyvtycccrcbrygvmrmtwcgbcgbca 338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       266 GCCCTGGCTCGCTGCTGCTCTTCCTCGC-CTCGCACTGCTGCTGGGCTCGGCGCGC 324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Envelope region nucleic acid fragment - for type C hepatitis virus (I), for producing vaccine claim 1; page 2; 13pp; Japanesse.

Claim 1; page 2; 13pp; Japanesse.

This sequence encodes a novel envelope region of type C hepatitis virus (HCV). This fragment can be used for the preparation of a vaccine for hepatitis C. This fragment was prepared from the serum of non-A, non-B hepatitis patients and the envelope region DNA was amplified by PCR using the primer sequences given in Q55073-76.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /*tag= a /note= "5' extra sequences beginning with the XhoI
                                                           148 GGGCCCCGAAAAGCTGGCAGCCGGCGGCTGGGGCGCGCGGAGAAGCGGGACACCGGGAGGAG
                                                                                                                                                                                                                                                                          LUMAY-1993 (first entry)
HCV envelope region nucleic acid.
Envelope, region, type C; hepatitis; virus; HCV; vaccine; serum; non-A, non-B; amplify; ss.
Hepatitis C virus.
04.4-Npc - 1.1.1.
                                                                                                                       Score 30; DB 6; Length 565;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pred. No. 3.65e-02;
55; Mismatches 57; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Vaccine; prophylaxis; treatment; Herpes Simplex Virus-1; glycoprotein; 9B; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   339 yrtcgayytgctygthgggrsvgcyrcyytctgyt 373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           325 GGCT-CTTCCTCTTTGGCCAGCCCGACTTCTCCT 358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Herpes simplex virus type 1 (KOS)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HSV-1 gB and surrounding regions.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         T 38
N71302 standard; DNA; 3871 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity 26.5%;
Matches 41; Conservative
```

ä

```
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Example; Table 1; l6pp; English.

NOTE: This sequence has been indexed as represented in the sequence has been indexed as represented in the comparization, except that bases 'E' have been replaced by 'N'.

The features have been indexed according to the legend of table 1 on column 19/20 and the Sequence Summary of column 5 (sic). Note that the base numbering of the features does not correspond to the the sequence numbering below.

For another DNA sequence of HSB-1 gB see N71303 (P71135), and for HSV-2 gB see N71399 (P71136).

A pure non-glycosylated anino acid (AA) chain comprising a sequence corresponding to that occurring in glycoprotein B of HSV-1 or HSV-2 virus which is antigenic to HSV-1 of HSV-2, which contains no more than 750 AA residues, and which includes AA residues 135-649 inclusive is claimed. It can be used to produce vaccines for prophylaxis and treatment of HSV-1 and HSV-1.

Sequence 3871 BP; 743 A; 1402 C; 544 G; 754 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2781 byaggtccabcbccbcaaccabtbcacbaccbcttcbcaccatcaccatcacgbtcatcc 2840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2841 acbccgacbccaacbccbccatsttcbcbbbcbbcbcbcttcttcbabbbgatbbbcga 2900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 189 CGAACTCCGGCCGCCTCGCCCTTCCCCGGCTCCGCTCCTCTGCCCCTTCGGGGTCGCGC 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0; Gaps
                                                                                                                                                                                                                           /note- "includes N-terminal hydrophobic leader and a membrane-spanning sequence, a C-terminal ionic sequence, and 9 N-linked saccharide-addition sites"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Amino acid chain of glyco:protein B of HSV-1 and 2 - prepd. as recombinant and used for vaccines for herpes simplex virus types 1
                                                                                                                                                                                                                                                                                                        /*tag= 1
3518..3525
/*tag= 1
/*tag= k
3549..3997
/*tag= 1
//note= "3' nonessential sequences to the BamHI
site"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 3871;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 30; DB 2; Length 3871;
Pred. No. 3.65e-02;
31; Mismatches 48; Indels
/*tag= e
/label= mRNA start sequence
/note= "501 is possible start site"
                                                                                                                                 /*tag= g
/label= mRNA start sequence
/note= "506 is possible start site"
                                                                              /label= mRNA start sequence
/note= "504 is possible start site"
                                                                                                                                                                                                              /label= HSV-1 gB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 1.5%;
Best Local Similarity 37.3%;
Matches 47; Conservative
                                                                                                                                                                                                                                                                                             3499..3549
                                                                                                                                                                              790..3498
                                                504..789
                                                                                                                . 789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         10-FEB-1987.
20-JUN-1984; 622496.
16-SEP-1983; US-532996.
20-JUN-1985; US-622496.
                                                                                                                                                                                                /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 87-056354/08.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (PERS/) PERSON S.
                                                                                                                                                                                                                                                                                                                            polya_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                            US4642333-A
                                                                                                                                                                                                                                                                                                                                                            polya_site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Person S;
                                                                                                                                                                                                                                                                                                                                                                                            misc_rna
                                                   misc_rna
                                                                                                                  misc_rna
                                                                                                                                                                                                                                                                                             3'utr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         and 2
                                                                                                                                                                                 cds
   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
```

2901 cctbgg 2906 CCTGGG 314

309

```
A method for treating airway disease in a subject has been produced, which involves the topical administration of an essentially adenosine free antisense oligonucleotide (ON) to the airway epithelium of the subject. The present sequence is an antisense oligonucleotide specific for the human II3, targeted at the initiation codon. The method can be seed to treat airway diseases such as cystic fibrosis, asthma, chronic obstructive pulmonary disease, bronchitis and other airway diseases characterised by an inflammatory response. By eliminating adenosine from the antisense ON, its liberation upon antisense degradation is privented, thereby preventing adenosine-induced bronchoconstriction in patients with hyper-reactive airways. 31 G; 9 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A method for treating airway disease in a subject has been produced, which involves the topical administration of an essentially adenosine free antisense obligonucleotide (ON) to the airway epithelium of the subject. The present sequence is an antisense obligonucleotide specific for the human IL4, targeted at the initiation codon. The method can be used to treat airway diseases such as cystic fibrosis, asthma, chronic obstructive pulmonary disease, bronchitis and other airway diseases characterised by an inflammatory response. By eliminating adenosine from the antisense ON, its liberation upon antisense degradation is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6 bccbggbgttggbgcbggbgcbggbcgggcbggcggctcbtgtttggbtcggcbggbggc 65
                                                                                                                                                                                                                                                                                                  Treatment of airway diseases such as asthma - by topically applying adenosine-free antisense oligo:nucleotide to airway epithelium of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Treatment of airway diseases such as asthma - by topically applying adenosine-free antisense oligo:nucleotide to airway epithelium of
                                                        12-SEP-1997 (first entry)
Human IL3 antisense oligonucleotide.
Asthma; airway epithelium; adenosine free; cystic fibrosis;
chronic obstructive pulmonary disease; bronchitis; interleukin; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12-SEP-1997 (first entry)

Human IL4 antisense oligonucleotide.

Asthma; airway epithelium; adenosine free; cystic fibrosis;

chronic obstructive pulmonary disease; bronchitis; interleukin; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 28; DB 32; Length 69;
Pred. No. 2.67e-01;
14; Mismatches 17; Indels
                                                                                                                                                                                                   06-JUN-1996; U09306.
07-JUN-1995; US-474497.
(UYEC-) UNIV EAST CAROLINA.
Metzger WJ, Nyce JW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 T76184 standard; DNA; 70 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              06-JUN-1996; U09306.
07-JUN-1995; US-474497.
(UYEC-) UNIV EAST CAROLINA.
                  standard; DNA; 69 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity 50.0%;
nes 31; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Nyce JW;
                                                                                                                                                                                                                                                                              WPI; 97-051871/05.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Metzger WJ, Nyce
WPI; 97-051871/05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO9640162-A1.
                                                                                                                                                             WO9640162-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 19-DEC-1996.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  355 TC 356
                                                                                                                                                                                  19-DEC-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             66 bc 67
                                                                                                                                             Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                         T76167;
LT 39
T76167
                                                                                                                                                                                                                                                                                                                                            subject
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               subject
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
```

66 bnnbnnbnnbnnbcacnnbnnbnnbcacnnbcacnnbnnbnnb 114

g

```
Trible Robbing Proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins comprising a binding domain and an effector domain objectosure; page 36; 235pp; English.

O70473 is a generic DNA sequence used to generate random TSAR (Totally Synthetic Affinity Reagents) peptides. This generic formula can also be represented as follows: X(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(CAC)(NNB)2(NNB)2(NNB)2(NNB)2(NNB)2(NNB)2(NNB)2(NNB)2(NNB)2(NNB)2(NNB)2(NNB)2(NNB)2(NNB)2(NNB)2(NNB)2(NNB)2(NNB)2(NNB)2(NNB)2(NNB)
                                                                                                                                        ö
preventing adenosine-induced bronchoconstriction in
                                                                                                                                                                                                              4 ggcbcbtgctbgcbggbbgbbcbgbgggggbbgcbgttgggbggtgbgbcccbttbbtbg 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Generic DNA sequence to generate a random TSAR peptide library.

TSAR; totally synthetic affinity reagent; synthetic; binding domain; effector domain; concatenated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                        Gaps
                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 114;
                                                                                        Length 70;
                                                                                                                                      17; Mismatches 18; Indels
                                                10 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 28; DB 12;
Pred. No. 2.67e-01;
                                                                                        Score 29; DB 32;
Pred. No. 9.94e-02;
                                                27 G;
                     patients with hyper reactive alrways. Sequence 70 BP; 0 A; 12 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note= "encoded by 2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualiflers
55..60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-FEB-1993; US-013416.
30-DEC-1993; US-176500.
31-JAN-1994; US-189331.
(UYNC-) UNIV NORTH CAROLINA.
FOWIKSS DM, KAY BK;
WPI: 94-279739/34.
P-PSDB; R583933.
                                                                                                                                                                                                                                                                                                                                                                                                                     Q70473 standard; DNA; 114 BP. Q70473;
                                                                                           Local Similarity 46.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                        30; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     U00977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
prevented, thereby
                                                                                                                                                                                                                                                                                                                             701 TIGIC 697
                                                                                                                                                                                                                                                                               64 gtgtc 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -FEB-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     10-APR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  18-AUG-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Synthetic.
                                                                                             Query Match
                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                Best
  8888
                                                                                                                                                                                    g
                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                               ద
```

546 CGAGCACAGGAACTICITGGIGICCGGGIGGCACIGCITCAIGACCAGCGGGAICCA-AG 488 bunbcacunbunbunbunbunbunbunbunbunbcacunbunbcacunbunnuncacun 65

Gaps

28; Mismatches 67; Indels

Similarity 11.9%; 13; Conservative

9

엄

Matches

```
A method for treating airway disease in a subject has been produced, which involves the topical administration of an essentially adenosine free antisense oligonuclectide (ON) to the airway epithalium of the subject. The present sequence is an antisense oligonuclectide specific for the human ILG, targeted at the initiation codon. The method can be used to treat airway diseases such as cystic fibrosis, asthma, chronic obstructive pulmonary disease, bronchitis and other airway diseases characterised by an inflammation response. By eliminating adenosine from the antisense ON, its liberation upon antisense degradation is prevented, thereby preventing adenosine-induced bronchoconstriction in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A method for treating airway disease in a subject has been produced, which involves the topical administration of an essentially adenosine free antisense oligonucleotide (ON) to the airway epithelium of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          260 recassaccorsecrecrecrecrecrecrecrecrecerecerescresecresses 319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Human IL6 antisense oligonucleotide.
Asthma; airway epithelium; adenosine free; cystic fibrosis;
chronic obstructive pulmonary disease; bronchitis; interleukin; ss.
                                                                                                                                                                                                                                                                                                                                      Treatment of airway diseases such as asthma - by topically applying adenosine-free antisense oligo:nucleotide to airway epithelium of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Treatment of airway diseases such as asthma - by topically applying adenosine-free antisense oligo:nucleotide to airway epithelium of
                                                                                                                                  Human ILG antisense oligonucleotide.
Asthma; airway epithellum; adenosine free; cystic fibrosis;
chronic obstructive pulmonary disease; bronchitis; interleukin; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
Length 128;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pred. No. 9.94e-02;
21; Mismatches 22; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                15 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                53 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            patients with hyper-reactive airways. Sequence 128 BP; 0 A; 28 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim 5; Page 31; 71pp; English
                                                                                                                                                                                                                                                                                                                                                                                             Claim 5; Page 31; 71pp; English
                                                                                                                                                                                                                                 12-7-DEC-1996; 009306; 00-7-JUN-1995; US-474497; UYEC-) UNIV BAST CAROLINA. Metzger WJ, Nyce JW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  06-JUN-1996; U09306.
07-JUN-1995; US-474497.
(UYEC-) UNIV EAST CAROLINA.
Metsger WJ, Nyce JW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity 41.1%;
Matches 30; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15-SEP-1997 (first entry)
                                                                                                                   15-SEP-1997 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .T. 43
T76233 standard; DNA; 128
                                                                 r 42
T76233 standarď; DNA; 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 320 CGCGCGGCTCTT 332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             71 bacgbbggcgatt 83
                                                                                                                                                                                                                                                                                                                   WPI; 97-051871/05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 97-051871/05.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WO9640162-A1.
19-DEC-1996.
                                                                                                                                                                                                              WO9640162-A1.
                                                                                                                                                                                                                               19-DEC-1996
                                                                                                                                                                                              Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        T76233;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   subject
                                                                                                                                                                                                                                                                                                                                                                               subject
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                 엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
```

ö

fibrosis;

```
Сp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
subject. The present sequence is an antisense oligonucleotide specific for the human IL6, targeted at the initiation codon. The method can be used to treat airway diseases such as cystic fibrosis, asthma, chronic obstructive pulmonary diseases, bronchitis and other airway diseases characterised by an inflammatory response. By eliminating adenosine from the antisense ON, its liberation upon antisense degradation is prevented, thereby preventing adenosine-induced bronchoconstriction in patients with hyper-reactive airways.

Sequence 128 BP, 0 A; 53 G; 15 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A method for treating alrawd disease in a subject has been produced, which involves the topical administration of an essentially adenosine free antisense oligonuclectide (ON) to the airway epithelium of the subject. The present sequence is an antisense oligonuclectide specific for the human vascular cell adhesion molecule-1 (VCAM-1), targeted at the initiation codon. The method can be used to treat airway diseases such as cystic fibrosis, asthma, chronic obstructive pulmonary disease, bronchitis and other airway diseases characterised by an inflammatory response. By eliminating adenosine from the antisense ON, its liberation upon antisense degradation is prevented, thereby preventing adenosine-induced bronchoconstriction in patients with hyper-reactive airways. Sequence 130 Bp; 0 A; 26 C; 29 G; 39 T;
                                                                                                                                                                                                                                                                                                                                                                                              ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             64 GCGGGCTTGCAGCGCCTCGCCGGCGCTCTCCCGGTGTCC-CGCTTCTCCGCGCCCCAGC 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                         24 bbggcbgcbgcbbcccbggbgcbgccccbgggbgbbggccbbctggbccgbbggcgctt 83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              40 bbbbgcttgbgbbgctgcbbbcbttbtccbbbgtbtttgbggctccbbggbtcbcgbc 99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            19-DEC-1996.
06-JUN-1995; UC-474497.
07-JUN-1995; US-474497.
Metzger WJ. Nyce JW;
WPI; 97-05191/05.
Treatment of airway diseases such as asthma - by topically applying adenosine-free antisense oligo:nucleotide to airway epithelium of
                                                                                                                                                                                                                                                                                                                                                                                           1; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12-SEP-1997 (first entry)
Human vascular cell adhesion molecule-1 antisense oligonucleotide.
Asthma: airway epithelium; adenosine free; cystic fibrosis;
chronic obstructive pulmonary disease; bronchitis; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ä
                                                                                                                                                                                                                                                                                                                          Score 28; DB 32; Length 128;
Pred. No. 2.67e-01;
21; Mismatches 17; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 28; DB 32; Length 130;
Pred. No. 2.67e-01;
28; Mismatches 23; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim 5; Page 28; 71pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100 cbtcttcccbggcbttttbbg 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      123 CGCCGGCTGCCAGCTTTTCGG 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          T76152 standard; DNA; 130 BP.
                                                                                                                                                                                                                                                                                                                             / Match
Local Similarity 43.5%;
les 30; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 1.4%;
Best Local Similarity 35.8%;
Matches 29; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 119 GGGGGGGGG 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         84 gtggbgbbg 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WO9640162-A1.
                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           subject
                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NOTE STATE S
      88888888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
```

```
sy subject.

Claim 5; Page 36; 71pp; English.

Method for treating airway disease in a subject has been produced, which involves the topical administration of an essentially adenosine free antisense oligonucleotide (ON) to the airway epithelium of the consider. The present sequence is an antisense oligonucleotide specific for the human interleukin 8, targeted at the initiation codon. The method can be used to treat airway diseases such as cystic fibrosis, asthma, chronic obstructive pulmonary disease, bronchitis and other airway diseases characterised by an inflammatory response. By eliminating adenosine from the antisense on, its liberation upon antisense degradation is prevented, thereby preventing adenosine.

C induced bronchoconstriction in patients with hyper-reactive airways.

Sequence 172 BP; O A; 35 C; 42 G; 39 T;
                                                                                                                                                                                                                                                                                                                                                                                    A method for treating alray disease in a subject has been produced, which involves the topical administration of an essentially adenosine free antisense oligonucleotide (ON) to the airway epithelium of the subject. The present sequence is an antisense oligonucleotide specific for the human RANTES, targeted at the initiation codon. The method can be used to treat airway diseases such as cystic fibrosis, asthma, chronic obstructive pulmonary disease, bronchitis and other airway diseases characterised by an inflammatory response. By eliminating adenosine from the antisense ON, its liberation upon antisense degradation is prevented, thereby preventing adenosine-induced bronchoconstriction in patients with hyper-reactive airways.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   23 bbtgtbggcbbbgcbgcbgggtgtggtgtccgbggbbtbtgggggbggcbgbtgcbggbgc 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Gaps
                                                                                                                                                                                                                                                                                Treatment of airway diseases such as asthma - by topically applying adenosine-free antisense oligo:nucleotide to airway epithelium of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Treatment of airway diseases such as asthma - by topically applying adenosine-free antisense oligo:nucleotide to airway epithelium of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15-SEP-1997 (first entry)
Human interleukin 8 antisense oligonucleotide.
Asthma; airway epithelium; adenosine free; cystic fibrosis; chronic obstructive pulmonary disease; bronchitis; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 162;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 28; DB 32; Length 162
Pred. No. 2.67e-01;
26; Mismatches 31; Indels
Asthma, airway epithelium; adenosine free, cystic fibi
chronic obstructive pulmonary disease; bronchitis; ss
                                                                                                                                                                                                                                                                             Treatment of airway diseases such as asthma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            83 gcbgbgggcbgtbgcbbtgbggbtgbcbgc 112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCTGCAAGCCCGCGCGCAGCTCCGGGGGGC 47
                                                                                                                                                                                                                                                                                                                                                             Example 5; Page 35; 71pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            T 46
T76363 standard; DNA; 172 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 1.4%;
Best Local Similarity 36.7%;
Matches 33; Conservative
                                                                                                                                  06-JUN-1996; U09306.
07-JUN-1995; US-474497.
UVEC-) UNIV EAST CAROLINA.
METSGER WJ, NYCE JW;
WPI; 97-051871/05.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       06-JUN-1996; U09306.
07-JUN-1995; US-474497.
(UYEC-) UNIV EAST CAROLINA.
Metzger WJ, Nyce JW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 97-051871/05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Synthetic.
WO9640162-A1.
                                                                                                              19-DEC-1996.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                19-DEC-1996.
                                                                                                                                                                                                                                                                                                                                      subject
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     T76363:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     subject
```

Length 172;

DB 32;

Score 29;

1.48;

Query Match

LT 45 176307 standard; DNA; 162 BP. 176307 (first entry) Human RANTES antisense oligonucleotide.

RESULT ID T7 AC T7 DT 15 DE Ht

ö

```
1252 atatatattttttaagaggctagagtgcttttagccttttttaaaa 1297
                                                                                                                                                                                                                                                                                                                  1454 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gunther A;
WPI; 89-293724/41.
P-PSDB; P91953.
                                                                                                                                                                 P-PSDB; P82317
     Homo sapiens.
                                                              WO8805659-A
                                                                                                                                                                                                                                                                                                     properties.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DE3810331-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             05-OCT-1989
                                                                                                                                                                                                                                                                                                                   Sequence
              Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                           g
      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    13-NOV-1990 (first entry)
13-NOV-1990 (first entry)
PAP-I cDNA from human placenta, used for anticoagulant production..
PAP-I; anticoagulant; anti-inflammatory agent; phospholipid;
phospholipase A2; disseminated intravacular coagulation; human placenta;
deep vein thrombosis; ss.
                ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ij
                                                                                                                                                                                                                                                                                                                                                                                                                                   A mathod for treating airway disease in a subject has been produced, which involves the topical administration of an essentially adenosine free antisense oligonucleotide (ON) to the airway epithelium of the subject. The present sequence is an antisense oligonucleotide specific for the human leukotriene C4 synthase, targeted at the initiation codon. The method can be used to treat airway diseases such as cystic fibrosis, asthma, chronic obstructive pulmonary disease, bronchitis and other airway diseases characterised by an inflammatory response.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gccctgcgcgcgcgbgbtcbcctgcbgggbgbbgtbggcttgcbgcbggbctcccbggbgg 119
                                                                                       ggbbbbcgctgtbggtcbgbbbgbtgtgcttbccttcbcbcbgbgctgcb-gbbtcbgg 119
                                                              196 GGAGTTCGAGCTTGTCCCGGGCCCGCTCTTCGCTGGGTGCGACTCGGGGCCCCCGAAAA 137
                                                                                                     gbtgtttgttbccbbbgcbtcbbgbbtbgctttgctbtctbbggbtcbcbtttbgbcbtb 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        By eliminating adenosine from the antisense ON, its liberation upon antisense degradation is prevented, thereby preventing adenosine-induced bronchoconstriction in patients with hyper-reactive airways. Sequence 200 BP; 0 $ 3 C; 80 G;
                Gaps
                                                                                                                                                                                                                                                                                                                                                                Metzger WJ Nyce JW;
WPI; 97-051871/05.
Treatment of airway diseases such as asthma - by topically applying
adenosine-free antisense oligo:nucleotide to airway epithelium of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1;
                ÷
                                                                                                                                                                                                                                                   Human leukotriene C4 synthase antisense oligonucleotide.
Asthma; airway epithellum; adenosine free; cystic fibrosis;
chronic obstructive pulmonary disease; bronchitis; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 32; Length 200;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 28; DB 32; Length 200 Pred. No. 2.67e-01; 24; Mismatches 46; Indels
                Indels
  . No. 9.94e-02;
Mismatches 52;
     Pred. No.
               44;
                                                                                                                                                                                                                                                                                                                                                                                                                            Claim 5; Page 38; 71pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BP.
                                                                                                                                      120 bbggctgccbbgbggccbc 139
                                                                                                                                                                57
                                                                                                                                                                                                               T76398 standard; DNA; 200 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N82107 standard; cDNA; 1454
                                                                                                                                                                                                                                                                                                              19-DEC-1996.
06-JUN-1996; U09306.
07-JUN-1995; US-474497.
(UYEC-) UNIV EAST CAROLINA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ouery Match
Best Local Similarity 44.18;
   30.78;
Similarity 30.7%; 43; Conservative
                                                                                                                                                                                                                                      15-SEP-1997 (first entry)
                                                                                                                                                      SCTGCAAGCCCGCGCGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gtgbcbg 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               343 CAGCCCG 349
                                                                                                                                                                                                                                                                                                    WO9640162-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                 subject
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       48
                                                                                                                                                              92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        120
               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A DA DA KW
                                                                                                              S
                                                                                                                                      g
                                                                                                                                                              S
                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                       유
                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
```

```
Disclosure; fig 1: 11pp; German.

The vascular anti-coagulating protein (VAC)-alpha encoded by this CDNA is used in the preparation of monoclonal antibodies (MADS). The VAC-alpha is injected into a host animal, in conjugation with eg keyhole limpet haemocyanin, and the B-cells from the immunised hosts are then fused with myeloma cells. The resultant hybridomas (VAA-8 and VAA-9) produce Abs specific to VAC-alpha. The Abs can be used as immunoassay reagents to detect VAC proteins, as affinity ligands for purificn. of VACs and as medicaments for binding and/or neutralising VAC proteins in vivo.

See also N91354 and EP-181465.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                           Human proteins having anticoagulant and antinflammatory activity isolated from biological fluid by anion-exchange chromatographoc media. Bisclosure; p; English.

A human placenta cDNA library (Clontech) was screened to obtain this sequence. The cDNA does not contain a leader peptide sequence, indicating that PAP-I is probably not constitutively secreted. The product binds to phospholipid and inhibits phopholipase A2. The protein can substitute heparin or other anticoagulants in the treatment of disseminated intravascular coagulation, deep vein thrombosis, or other disorders. It also has antiinflammatory
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Vascular anti-coagulating protein-alpha cDNA.
Vascular anti-coagulating proteins; hybridomas; B-cells; myelomas; ss.
Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Monoclonal antibodies to vascular anti-coagulating proteins - and hybridomas producing such antibodies.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 1454;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 1466;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
1.4%; Score 28; DB 1; Length 1454
Best Local Similarity 80.4%; Pred. No. 2.67e-01;
Matches 37; Conservative 0; Mismatches 9; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1227 atatatattttttaagaggctagagtgcttttagcctttttaaaa 1272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 416 T;
                                                                                                                                                                                                                                                                               Univ of Washington.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 28; DB 2; L
Pred. No. 2.67e-01;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 324 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 280 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /label-VAC-alpha cDNA
Location/Qualifiers
                                                                                                                                                                                                                                                                            (2YMO-) Zymogenetics Inc; (UNIW) 1
Fujikawa K, Irani MH, Carter BLA;
WPI; 88-235049/33.
                                                                                            /product-PAP-I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .T 49
N91353 standard; DNA; 1466 BP
N91353;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 434 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 1.4%;
Best Local Similarity 80.4%;
Matches 37; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               26-MAR-1988; 810331.
26-MAR-1988; DE-810331.
(BOEH) Boehringer Ingelhei.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   30-JUL-1989 (first entry)
                                                               /*tag=
                                                                                                                                                      11-AUG-1988.
05-FEB-1988; U00340.
06-FEB-1987; US-011782.
05-JUN-1987; US-059355.
```

ô

Gaps

;

ò

```
Recombinant placental coagulation inhibitor - useful for the prevention and treatment of thromboses or disseminated intra-vascular coagulation. Disclosure; p: English.

This recombinant DNA sequence comprises a promoter region, ribosome binding site, initiation sequence, termination codon and a transcription terminator in addition to the placental coagulation inhibitor gene. The polypeptide produced on culturing of transformed host cells exhibits strong anticoagulant activities and is useful for the treatcoagulation in the brain, heart and peripheral blood vessels. Sequence 1567 BP: 430 A; 332 C; 358 G; 447 T;
                                                                                                                                                                                                                                                                                             Score 28; DB 1; Length 1567; Pred. No. 2.67e-01; 0; Mismatches 9; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 1.4%; Score 28; DB 1; Length 1575; Best Local Similarity 80.4%; Pred. No. 2.67e-01; Matches 37; Conservative 0; Mismatches 9; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Grundmann U, Abel K-J, Kupper H;

WPI; 89-166767/23.

WPI; 89-166767/23.

WPI sequence encoding anticoagulant PP4 protein

- and new recombinant protein, vectors, antibodies, etc.,

useful therapeutically and diagnostically.

Claim 1; table 1; 14pp; German.

DNA sequence encoding anticoagulant PP4 protein. This inhibits blood coagulation at the thromboplastin stage. The derived protein is 320 amino acids.

Sequence 1575 BP; 461 A; 322 C; 351 G; 441 T;
                                                                                                                                                                                                                                                                                                                                                                                 1353 atatatatttttaagaggctagagtgcttttagcctttttaaaa 1398
                                                                                                                                                                                                                                                                                                                                                                                                                      1794 ATATAAATTTTATAATTGACTTGAGTACTTTAAGCCTTGTTTAAAA 1839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1324 atatatatttttaagaggctagagtgcttttagccttttttaaaa 1369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Anticoagulant; PP4 protein; thromboplastin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
1539..1575
/*tag= a
107..1066
/*tag= b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
160..1119
/*tag= a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    T 52
N90112 standard; DNA; 1575 BP.
N90112;
                                                                                                                                                                                                                                                                                             Match 1.4%;
Local Similarity 80.4%;
les 37; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  16-MAR.1990 (first entry)
Endonexin II complete cDNA
Placenta; blood coagulation
Homo sapiens (human).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        T 53
N91821 standard; DNA; 1605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1-NOV-1989 (first entry)
Anticoagulant PP4 DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             07-JUN-1989.
29-SEP-1988; 118039.
03-NOV-1987; EP-737239.
(BEHW) Behringwerke AG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens (human)
                       P-PSDB; P80511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            polya_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EP-339285-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EP-318703-A
                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N91821;
                                                                                                                                                                                                                                                                                                                       Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
    셤
                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          New Vascular anti:coagulating proteins -

useful as thrombin inhibitors, antiflammatory agents, etc

Disclosure; Fig 4/1-4/3: 183pp; German.

The DNA is produced by determining the amino acid sequence of isolated
and highly purified VAPs, constructing DNA probes on the basis of this
sequence, using the probes to search through suitable cDNA libraries,
isolating cDNA that hybridises with the probes, by inserting the cDNA
into a suitable vector, and using the vector to transform a host
organism. VAC-alpha has anticoagulant activity under certain
conditions, but loses this activity in the event of severe bleeding.

It acts by inhibiting conversion of factor X to factor Xa and conversion
of prothrombin to thrombin. It is structurally related to lipcocrtin I
(Nature, 320, 77, 1986) and lipocortin II (Cell, 46, 191/120, 1986) and
has similar antinflammatory and phospholipase inhibitory activity.
Sequence 1466 BP: 422 A; 289 C; 328 G; 424 T; 3 Others;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                     WO8807576-A.
06-0CT-1988.
26-MR-1988.
26-MR-1987; DE-737367,
(BOEH) Boehringer Ingelheimint.
(BOEH) Boehringer Ingelheimint.
Hauptnann R. Maurer-Fogy I, Bodo G, Swetly P, Stratowa C, Falkner E, Adolf G, Reutlingsperger CMP;
WPI: 88-292861/41.
P-PSDB; P80714.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N81113;
12-NOV-1990 (first entry)
Plasmid contg. placental coagulation inhibitor gene.
Placental coagulation inhibitor; disseminated vascular coagulation;
                                                                                                                                              12-SEP-1990 (first entry)
Sequence encoding vascular anticoagulating protein (VAP) VAC-alpha
                                                                                                                                                                                       (Glu22)
Vascular anticoagulating protein (VAP) VAC-alpha; anticoagulant;
antiinflammatory; phospholipase inhibitory.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 28; DB 1; Length 1466;
Pred. No. 2.67e-01;
0; Mismatches 9; Indels
/note="claimed in claim 2, page 160-161"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1252 atatatattttttaagaggctagagtgcttttagccttttttaaaa 1297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /*tag= a
/label=placental coagulation inhibitor
                                                                                                                                                                                                                                                              Location/Qualifiers 35..997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
136..1098
                                                                                                     N80801 standard; DNA; 1466 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N81113 standard; DNA; 1567 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EP-279459-A.
J03219875-A.
24-AUG-1988: 102468.
23-JUL-1987; JP-184428.
23-JUL-1987; JP-184428.
23-JUL-1987; JP-037227.
(KOWA) Kowa KK.
Saino Y. Iwasaki A, Suda M;
WPI; 88-236733/34.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 1.4%;
Best Local Similarity 80.4%;
Matches 37; Conservative
                                                                                                                                                                                                                                                                                                              /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    thrombosis; ss.
                                                                                                                                                                                                                                                      Homo sapiens.
                                                                                                                           N80801;
12-SEP-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              polya_signal
                                                                                                                                                                                                                                                                                             mat_peptide
```

RESULT

NO. 80

ö

Gaps

ö

음 ò

```
Disclosure; Page 43-44; 61pp; English.

This sequence comprises novel mouse frizzled gene 7 (Mf27)

This sequence comprises novel mouse frizzled gene 7 (Mf27)

This sequence comprises novel mouse frizzled gene 7 (Mf27)

a What receptor (WhatR). Novel frizzled family members have been identified in Drosophila, mouse, human and Caenorhabditis (see T8985-92) and are considered to be What receptors. What receptors can be used in a novel, claimed method of screening for compounds which modulate the binding of a What polypeptide (secreted proteins involved in cell-to-cell signalling) to a What receptor. What is involved in (mammary) cancer and other processes involving growth, development and proliferation (both normal and abnormal).

Modulators identified by the claimed method are useful for treatment of diseases related to these conditions.

Sequence 2259 BP; 362 A; 739 C; 677 G; 481 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Example 5; Page 39; 71pp; English.
A method for treating airway disease in a subject has been produced, which involves the topical administration of an essentially adenosine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        559 ctgcccaacctgctgggccacaacgaaccaagaggacgcgggcctcgaggtgcaccagttc 618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             619 taccetetggtaaaggtgeagtgtteteetgagetaegettettettatgetetatgtae 678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            553 GCCCCCGTCTGCTTCGATGACCTAGACGAGCCATCCAGCCATGCCACTCGCTCTGCGTG 612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 treatment of cancer and growth, development or proliferation related
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Treatment of airway diseases such as asthma - by topically applying adenosine-free antisense oligo:nucleotide to airway epithelium of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          736 cgcgcccgacagggctgcgaggcgctcatgaacaagttcggcttccagtggccaga 791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       613 CAGGIGAAGGACCGCIGCGCCCCGGICAIGICCGCCIICGGCTICCCCIGGCCCGA 668
                                                                                                                                                                                                                                                                                                                                                                                                  Identification of Wnt receptor binding modulators - useful for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Human endothelin TRA receptor antisense oligonucleotide. Asthma; airway epithelium; adenosine free; cystic fibrosis; chronic obstructive pulmonary disease; bronchitis; ss. Synthetic. W09640162-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 2259;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pred. No. 9.94e-02;
0; Mismatches 93; Indels
                                                                                                                  23-OCT-1997.
11-ARR-1997; U06049.
11-APR-1996; US-015307.
(UXJO ) UNIV JOHNS HOPKINS.
(STRD) UNIV LELAND STRANFORD JUNIOR.
Andrew D, Bhanot P, Brink M, Hsieh J, Nathans J, Nusse R, Samos CH, Wangy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 29;
   Location/Qualifiers
361..2079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MO964ULD.
19-DEC-1996.
06-JUN-1996; U09306.
07-JUN-1995; US-474497.
(UYEC-) UNIV EAST CAROLINA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .T 56
T76423 standard; DNA; 125 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 1.4%;
Best Local Similarity 59.3%;
Matches 140; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (first entry)
                                                                  /*tag=
                                                                                                                                                                                                                                                                                                                                      WPI; 97-526631/48.
P-PSDB; W31273.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      16-SEP-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     disorders
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               T76423;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 subject
      원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ô
                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Claim 24; Page 99-101; 154pp; English.
A cDNA library was prepared in lambda gt10 from mRNA isolated from ovaries of 3-4 month old cats. Plaques were screened using a mixture of probes encoding porcine ZPA, ZPB and ZPC proteins. Positive clones were analysed further by Southern hybridisation using the porcine probes and clones encoding feline ZPA, ZPB and ZPC proteins were identified. The deduced amino acid sequence from the feline ZPB clone was approximately 80% homologous to porcine ZPB
                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                   11-MAR-1988; US-176802.

(RORE) Rorer Int Overseas.

(RORE) Rorer Int Overseas.

(Rollan N. Jaye M;

P-PSDB; P91021.

Recombinant human endonexin II - which inhibits blood coagulation and phospholipase A2 and is used as an antiinflammatory agent Claim 1; fig. 1; 13pp; English.

hENII is a calcium and phospholipid binding protein.

Sequence 1605 BP; 447 A; 337 C; 366 G; 455 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         789891;
27-APR-1998 (first entry)
Mouse frizzled gene 7 (MfZ7) encoding a Wnt receptor.
Wnt receptor; mouse frizzled gene 7; MfZ7 gene;
signal transduction; cancer; cell growth; cell proliferation;
mammary tumour; oncogene; therapy; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            09-NOV-1992; US-973341.
29-JAN-1993; US-012990.
(ZONA-1993; US-012990.
(ZONA-1993; US-012990.
(ZONA-1993; US-012990.
(ZONA-1993; US-012990.
(ZONA-1993; US-012990.
(ZONA-1993; US-012990.
(ZONA-1992; US-01299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 1.4%; Score 29; DB 11; Length 1840; Best Local Similarity 96.8%; Pred. No. 9.94e-02; Matches 30; Conservative 0; Mismatches 1; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            428 T;
                                                                                                                                                                                                                                                                                                                                                               Score 28; DB 1; Length 1605; Pred. No. 2.67e-01;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-FEB-1995 (first entry)
Feline zona pellucida ZPB coding sequence.
Cat; feline; zona pellucida; ZPB; immunocontraception; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                               9; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1378 atatatatttttaagaggctagagtgcttttagccttttttaaaa 1423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            441 G;
                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1804 ttaccaaaaaaaaaaaaaaaaaagcggccgc 1834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1997 TTACCTAAAAAAAAAAAAAAGCGGCCGC 2027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            538 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
57..1769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            433 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               T89891 standard; DNA; 2259 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /*tag= a
/product= ZPB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         065611 standard; cDNA; 1840
                                                                                                                                                                                                                                                                                                                                                                  Query Match 1.4%;
Best Local Similarity 80.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                               37; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1840 BP;
30-MAR-1989; 105626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  06-NOV-1993; U10851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Cat; feline; zone Felis domesticus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      female mammals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO9411019-A
```

065611;

Matches

PR PR PR DR DR PT PT SO SO SO SO

g

ò

Sequence

RESULT

OX KW COTO

ò

셤

protein

ä

Gaps

т :

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A method for treating alrays disease in a subject has been produced, which involves the topical administration of an essentially adenosine free antisense oligonuclectide (ON) to the airway epithelium of the subject. The present sequence is an antisense oligonuclectide specific for the human endothelin receptor ET-B, targeted at the initiation codon. The method can be used to treat airway diseases such as cystic fibrosis, asthma, chronic obstructive pulmonary diseases, bronchitis and other airway diseases characterised by an inflammatory response. By eliminating adenosine from the antisense ON, its liberation upon antisense degradation is prevented, thereby preventing adenosine. Induced bronchoconstriction in patients with hyper-reactive airways. Sequence 144 BP; O A; 55 C; 46 G; 19 T;
               subject. The present sequence is an antisense oligonucleotide specific for the human endothelin ETA receptor, targeted at the initiation codon. The method can be used to treat airway diseases such as cystic fibrosis, asthma, chronic obstructive pulmonary disease, bronchitis and other airway diseases characterised by an inflammatory response. By eliminating adenosine from the antisense ON its liberation upon antisense degradation is prevented, thereby preventing adenosine-induced bronchoconstriction in patients with hyper-reactive airways. Sequence 125 BP: O A; 29 C; 27 G; 34 T;
                                                                                                                                                                                                                                                                                                                                                        66 GGGCTTGCAGCGCCTCGCCGCGCTCTCCCGGTGTTCTCCGCGCCCCAGCCGC 125
                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Treatment of airway diseases such as asthma - by topically applying adenosine-free antisense oligo:nucleotide to airway epithelium of
  antisense oligonucleotide (ON) to the airway epithelium of the
                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Human endothelin receptor ET-B antisense oligonucleotide.
Asthma; airway epithelium; adenosine free; cystic fibrosis;
chronic obstructive pulmonary disease; bronchitis; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 27; DB 32; Length 144;
Pred. No. 7.04e-01;
22; Mismatches 40; Indels
                                                                                                                                                                                                                                             Length 125;
                                                                                                                                                                                                                                         Score 27; DB 32; Length 125
Pred. No. 7.04e-01;
18; Mismatches 18; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Example 5; Page 38; 71pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 T76416 standard; DNA; 144 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              19-DEC-1996.
06-JUN-1996; U09306.
07-JUN-1995; US-474497.
(UYEC-) UNIV EAST CAROLINA.
Metzger WJ, Nyce JW;
                                                                                                                                                                                                                                           Query Match 1.3%;
Best Local Similarity 42.9%;
Matches 27; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Match 1.3%;
Local Similarity 47.1%;
les 57; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 97-051871/05.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Synthetic.
WO9640162-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             15-SEP-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ::|
126 CGG 128
                                                                                                                                                                                                                                                                                                                                                                                                                     78 bbg 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          subject
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             T76416;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8888888888888
                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                     엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                6
```

subject
Claim 5; Page 34; 71pp; English.

Claim 5; Page 34; 71pp; English.

Claim 5; Page 34; 71pp; English.

A method for treating airway disease in a subject has been produced, which involves the topical administration of an essentially adenosine free antisense oligonucleotide (ON) to the airway epithelium of the crowledge of subject. The present sequence is an antisense oligonucleotide specific complete the human defensin 3, targeted at the initiation codon. The method can be used to treat airway diseases such as cystic fibrosis, asthma, chronic obstructive pulmonary disease, bronchtis and other altway diseases characterised by an inflammatory response. By eliminating adenosine from the antisense ON, its liberation upon antisense degradation is prevented, thereby preventing adenosine.

Confidenced bronchoconstriction in patients with hyper-reactive airways.

WPI: 97-031871/05. Treatment of airway diseases such as asthma - by topically applying adenosine-free antisense oligo:nucleotide to airway epithelium of

06-JUN-1996; U09306. 07-JUN-1995; US-474497. (UYEC-) UNIV EAST CAROLINA.

WO9640162-A1

Synthetic

19-DEC-1996

Nvce JW;

Metzger WJ,

Human defensin 3 antisense oligonucleotide. Asthma; airway epithelium; adenosine free; cystic fibrosis; chronic obstructive pulmonary disease; bronchitis; ss.

entry)

(first

15-SEP-1997

standard; DNA; 145 BP.

T76299

cbgcctggggcctgcbggggccbccbggbbtggcbggcbbggbtggcgbgggtcctcbtgg 116 199 CCGCCTCGCCCTTCCCCGGCTCCGCTCCCTCTGCCCCTCGGGGTCGCGCGCGCCCACGATG 258

q

δ

δ

. 0

Length 145;

Score 27; DB 32; Length 145 Pred. No. 7.04e-01; 15; Mismatches 24; Indels

1.3%; S. larity 48.0%; F. Conservative 1

Local Similarity nes 36; Conser

Best Loc Matches 57

용

Query Match

```
Disclosure; Fig 3a(1-2); 94pp; English.

Bovine folliculo stellate cells were used in the process of obtaining cDNA encoding bVEGF (120 amino acids from). The probes represented in Q10806 and -07 were used in the screening procedures. The sequence encodes amino acids 15-120 of bVEGF (see R10916).
                           010792,
08-MAY-1991 (first entry)
Bovine vascular endothelial cell growth factor 120 from clone 11B'
Bovine vascular endothelial cell growth factor; anglogenesis;
                                                                                                                                                                                                                                                                                                                              DNA encoding vascular endothelial cell growth factor - used for producing the factor for angiogenesis and re-endothelialisation in wound healing
                                                                                                                                                                                                                                                                                 (CALB-) CALIF BIOTECHN INC.
Tischer ER, Abrhamam, Fiddes JC, Mitchell RL;
WPI; 91-073534/10.
                                                                                                 wound healing; bVEGF; PDGF; clone 11B'; ss
                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                   /product= bVEGF
            Q10792 standard; DNA; 789 BP.
                                                                                                                                                                 /*tag=
                                                                                                                                                                                                                                                27-JUL-1989; US-387545.
14-DEC-1989; US-450883.
                                                                                                                                                                                                                    21-FEB-1991.
27-JUL-1990; U04227
                                                                                                                                                                                                    WO9102058-A.
                                                                                                                    taurus
RESULT
```

ñ

Gaps

5;

81 tccgcbcbgbcttggbggcggctgctgctgctbcctgctccbgbbgcgtccggtggccg 140

263 AGGCCCTGGCTCGTCGTCTTCCTCGCCTCGCTGCTGCTGGCTCGGCG

141 c 141 C 322

22 ctctcctctccccbgbtccgcgbcbggc-cgcbggcbbgbbccbgcgcbbccbgggcgcg 80

Matches

g ŏ 엄 ò

203 CTCGCCCTTCCCCGGCTCCGTCTGCCCCCTCGGGGTCGCGCGCCCACGATGCTGC

321

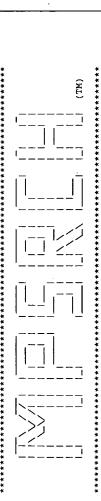
```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                same factor. The two sequences can be enzymatically joined, after 010792 has been digested with the restriction enzyme Acci, to poduce a sequence encoding the full length, mature byEGF120 protein. The amino acid sequence contains one potential site for Nygycosylation at Asp 74 (corresp. to 75 in the human form). Inch DNA sequence is useful in the retrieval of DNA coding for length byEGF, or the corresp. factors of other species, including human protein, or related proteins in the same gene family. See also 010791-93; Old 0791-93; Old 010806-08 and Q11099.
                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Example 4 and Claim 1; Fig 6; 40pp; English.
The sequence of Q44259 contains an open reading frame corresponding to the 164 amino acid bovine vasular endothelial cell growth factor (bVEGF-164, see R38920). Alternative splicing of the sequence gives a shorter coding sequence which encodes the 120 amino acid bVEGF (R88916).
Sequence 91bp; 304 A; 224 C; 226 G; 207 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0; Gaps
                                                                                                                                                                                                                                                                                                                                                               044259 standard; cDNA; 961 BP.
044259 standard; cDNA; 961 BP.
28-0CT-1993 (first entry)
Bovine VEGF-164 coding sequence.
Angiogenesis; wound healing; mitogen; vascular endothelial cells; Vascular Endothelial Cell Growth Factor; bVEGF-120; bVEGF-164; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Isolated DNA sequences, expression vectors and transformant cells - used for large scale prodn. of vascular endothelial cell growth factor, for treating wounds in which neo-vascularisation is
010793 represents a sequence encoding amino acids 1-19 of the
                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note= "region absent from the alternatively spliced coding sequence which encodes bVEGF-120"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /reay- - //reay- - //readout- bVEGF-164
/prote= "DNA consisting of nucleotides 1-341
followed by 474-492, encoding the bVEGF-120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Mismatches 18; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ouery Match
1.3%; Score 27; DB 7; Length 961;
Best Local Similarity 71.4%; Pred. No. 7.04e-01;
Matches 45; Conservative 0; Mismatches 18; Indels
                                                                                                                                                                                                        Score 27; DB 2; Length 789;
Pred. No. 7.04e-01;
0; Mismatches 9; Indels
                                                                                                                                                                                                                                                                                                Mitchell RL, Tischer EG;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualiflers
1..495
/*tag= a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               protein, is claimed 342..473
                                                                                                                                                                                                        1.3%;
Local Similarity 80.0%;
les 36; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     27-JUL-1989; US-387545.
14-DEC-1889; US-450883.
27-JUL-1990; US-559041.
(SCIO-) SCIOS NOVA INC.
Abraham JA, Fiddes JC, N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Abraham JA, Fiddes JC,
WPI; 93-205302/25.
P-PSDB; R38916, R38920.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        15-JUN-1993.
27-JUL-1989; 387545.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US5219739-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    required
                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                               8888888888888
                                                                                                                                                                                                                                                                              염
                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
```

954 aaa 956

ŏ

```
7 2017 AAA 2019
```

Search completed: Thu Nov 5 12:25:32 1998 Job time : 647 secs.



Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

n.a. • n.a. database search, using Smith-Waterman algorithm MPsrch_nn

Thu Nov 5 10:57:48 1998; MasPar time 2269.27 Seconds 1370.520 Million cell updates/sec Run on:

Tabular output not generated.

>US-08-848-439-1 (1-2027) from US08848439.seq 2027 Description: Perfect Score: N.A. Sequence:

1 GAATICGGCCTTCATGGCCT......AAAAAAAAAAAAAAGGCGCCGC 2027 CTTAAGCCGGAAGTACCGGA......TTTTTTTTTTTTCGCCGGCG

TABLE default Gap 6 Scoring table:

Dbase 0; Query 0 STD Nmatch 1988617 seqs, 767163441 bases x 2 Searched:

Post-processing:

Minimum Match 0% Listing first 60 summaries

embl-est55
1:em_est10 2:em_est11
genbank-est107 Database:

Database:

3:9b_est1 4:9b_est10 5:9b_est11 6:9b_est12 7:9b_est13 8:9b_est14 9:9b_est15 10:9b_est16 11:9b_est17 12:9b_est18 13:9b_est19 14:9b_est2 15:9b_est20 16:9b_est21 17:9b_est2 18:9b_est2 18:9b_est2 18:9b_est2 18:9b_est2 18:9b_est8 28:9b_est9 27:9b_est9 27:9b_est9 27:9b_est9 27:9b_est9 27:9b_est9 27:9b_est9 27:9b_est9 27:9b_est8 26:9b_est9 27:9b_est8

Mean 12.290; Variance 3.203; scale 3.837 Statistics: Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed and is derived by analysis of the total score distribution.

					SUMMARIES		
Result No.	Score	% Query Match	% Query Match Length DB	DB	8	Description	Pred. No.
1	553	27.3	:	7	AA528226	nh92a05.s1 NCI_CGAP_Br	0.00e+00
7	479	23.6		22	AA071469	ze88f06.sl Soares feta	0.00e+00
٣	473	23.3		22	N93894	yy64d09.rl Homo sapien	0.00e+00
4	472	23.3		24	W92531	ze03g10.rl Soares feta	0
S	468	23.1		ω	AA513750		_
φ	468	23.1		15	AA857092	of62a09.s1 NCI_CGAP_Co	_
7	453	22.3		24	W72225	zd70e11.s1 Soares feta	0.00e+00
80	434	21.4		^	AA449300	zx08c06.s1 Soares tota	_
σ	433	21.4		17	AA922948		_
10	425	21.0		S	AA431859		_
11	420	20.7			AA927991		_
12	416	20.5	446	22	N64004	yy64d09.sl Homo sapien	0.00e+00
13	413	20.4			W77968	zd70e11.rl Soares feta	0.00e+00

0.0	44	00	0.0	0 4	c	AA449749	zx07el0.sl Soares tota	00e+0
	6 4	Ö		9	1	AA449032	rl Soares t	.00e+0
υ,	7	0	0,	0	•	AA505877	.s1 NCI_CGAP_B	.00e+0
	ασ • «	$\rightarrow \infty$		$\sim \alpha$	⊣	AA9/6403 AA528219	SI NCI CGAP	. 00e+0
	30	9		2		AA431858	rl Soares tot	.00e+0
. • •		o u	m r	L CI	٥,	AA105749	rl Stratagen	.00e+0
O	1 m	စေ		~ m	- C	AA024772	sl soares f	.00e+0
. • •	4 t	S	, _'	OI IC	7	H87071	rl Homo sapi	-
•	9	n) 4	Н	AI047549	rl Soares m	.00e+0
. • (7	3 3	ທ່າ	0	7		rl Homo sapi	.00e+0
• • • •	יי ממ	2 0		40	~	AA073862	orta cunA .rl Strata	.00e+0
	0	(7)	· ·	-	0	AA024771	.rl Soares	.00e+0
0	3 3	2 0		7	4 6	AA705737 H44092	.sl Soares	000+0
. 1.7		20		2	1	AA335712	8 Epididyn	.00e+0
	4.r	(1)	ا ما	2	(AA295688	187 Pancre	.00e+0
טט	ი ო ი ა	7 [ດ ທ	20	7 (1	M15818 N32424	VIZECUS.SI Homo sapien vw83e07.sl Homo sapien	.00e+0
	7 3	1		3	1	HUM230F10B	orta cDNA	.00e+0
, 1.	e c	H 0	່. ທ່≂	40	7	N56835	rl Homo s	.00e+0
v	n 0	ν O	 * -	0	Н		SI NCI CO	.00e+0
	7	on .		г —		HUM304B12B	orta cDNA	.00e+0
	2 6	ത ദ	. .	00			orta cDNA	.00e+0
ט	2 4 2 C	ש ע		00		AA34//85 HUM307G04B	orta conA	.00e+0
7	2	0	4	0			3 Embryo,	.00e+0
•	91	തര		o c		HUM238C04B	orta cDNA 5'-	.00e+0
. 7	· 8	ש ע	 * *	ν 4	7		como sapi	.00e+0
7	6	00	4	g.	ı		aorta cDNA 5'-	.00e+0
	0,	100	4.	@ 0			aorta cDNA 5'-	.00e+0
,	7 (· r	· ~	7 Q		HUM343G04B	aorta cDNA 5'-	000-0
	9 6			. ~			state	.006+5
	4.	-	<u>.</u>	8		AA339113	1185 Fetal brain	.00e+0
., .	2 6	oκ	م د	ນ ແ	c	C16543	n aorta cDNA 5 17 el stratad	000+0
	20	S		o o	1	HUM286A04B	an aorta cDNA 5'-e	.00e+0
-, .	8	S	· .	8	0		3f06.rl Soares fet	.00e+0
	20 20 20	55	12.6 12.5	394 266		AA260087 HUM224H07B	8.rl Soares aorta cDNA 5	0.00e+00 0.00e+00
						ALIGNMENTS		
RESULT	LT 1	AA5	282	Ŋ	79	Ω	05-AU	-199
DEFI	NOITIN	nh92	0	Ż	CGAP	_Brl.1 Homo	sapiens cDNA clone IMAGE:	:965936,
ACCESSIC	SSION	AA528	8 segue 28226	ence.				
KEYWORDS	ORDS	BST.	Ŋ					
SOUR	URCE ORGANISM	hum	sapi	ens			•	
		Eukar	ukaryota ertebrat	a ;;	ocho mali	mitochondrial eukar Mammalia; Eutheria;	eukaryotes; Metazoa; Chordata; eria; Primates; Catarrhini; Ho	ı; Hominidae;
REFE	RENCE	HOMO 1	o. (bases	1 to	579)			
AU	AUTHORS	NCI	-CGAP	http	- 32	.ncbi.nlm.nih	h.gov/ncicgap.	

10001	
TOCUS	AA528226 579 bp mRNA EST 05-AUG-1997
DEFINITION	nh92a05.sl NCI_CGAP_Br1.1 Homo sapiens cDNA clone IMAGE:965936,
	mRNA sequence.
ACCESSION	AA528226
NID	92270295
KEYWORDS	BST.
SOURCE	human.
ORGANISM	Homo sapiens
	Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
	Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
	Homo.
REFERENCE	1 (bases 1 to 579)
AUTHORS	NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap.
TITLE	National Cancer Institute, Cancer Genome Anatomy Project (CGAP),
	Tumor Gene Index
JOURNAL	Unpublished (1997)
COMMENT	
	Contact: Robert Strausberg, Ph.D.
	Tel: (301) 496-1550
	Email: Robert_Strausberg@nih.gov
	Tissue Procurement: Christopher Moskaluk, M.D., Ph.D., Michael R.

a

```
Sequencing Center
information can be
                                                                                                                                                                                                                                                                                                          /note="Vector: purpless" /note="Vector: pp773D-pac (Pharmacia) with a modified polylinker; ist strand cDNA was prepared from pooled bulk breast tumor tissue, and was then primed with a Not I loigo(dT) primer. Double-stranded cDNA was ligated to Eco RI adaptors (Pharmacia), digested with Not I and cloned into the Not I and Eco RI sites of the modified pp773 vector. Library is not normalized. (The normalized version of this library is NCI_CGAP_BT2.) Library was constructed by Bento Soares and M. Fatima Bonaldo."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2019 TITITITITITITITITAGGTAAAAAGAGGATGTAAAGTTTATATACAAGAATATAATGTT 1960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1899 ACTATGTATATACAGGTAAGCTACAATGGGTTTAAATTTGCAAAAGGTTAAAGTAAAGAAATG 1840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1959 TATCTGAAATATTTACAGTGTTGGTTAAAGCAATATTTTTACAACTTTTAAAGGTAAACT 1900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1659 GTAAGACTTAGACACTGAGTCTCAGTCTGGAGCTGATGAAGATGTTGAGATAACACCCAG 1600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1599 CTTTATCTCAACAGGGTTGTGACCCACAAGTTTGGGCCACAGAAAATTGAAGCAATT 1540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    77 TATCTGAAATATTTACAGTGTTGGTTAAAGCAATATTTTTACAACTTTTAAAGGTAAACT 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         17 ITITITITITITITIAGGTAAACAGGAIGTAAAGTITATATACAAGAATATAGIT 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTTTAAACAAGGCTTAAAGTACTCAAGTCAATTATAAAATTTATATCTTTTGCCTTTTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1839 ITTTAAACAAGGCTTAAAGTACTCAAGTCAATTATAAAATTTATATCTTTGCCTTTTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               257 ITGAAGAAATCATGCTATAGAAATGGTTAATGTGCTTCTAATAAATGGAAGTATTGTAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1779 TTGAAGAAATCATGCTATAGAAATGGTTAATGTGCTTCTAATAAATGAAGTATTGTAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            317 IGGAAIGTGAIACAIGTAACAGIITAAGIICCCAIIGAAGGIAIAAAAIGAIGAITGII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTAAGACTTAGACACTGAGTCTCAGTCTGGAGCTGATGAAGATGTTGAGATAACAGCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTITATCTCAACAGGGTTTGTGACCCACAAGTTTGGGCCACAGAGAAAATTGAAGCCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 579;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5; Indels
                       cDNA Library Preparation: M. Bento Soares, Ph.D.
                                        cDNA Library Arrayed by: Greg Lennon, Ph.D. DNA Sequencing by: Washington University Genome Clone distribution: NCI-CGAP clone distribution found through the I.M.A.G.E. Consortium/Libr at:
                                                                                                                                                                                                      Seg primer: -40ml3 fwd. ET from Amersham
High quality sequence stop: 206.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 553; DB 7; 1
Pred. No. 0.00e+00;
                                                                                                                                     www-bio.llnl.gov/bbrp/image/image.html
                                                                                                                                                                                   Std Error: 0.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /clone="IMAGE:965936"
/clone_lib="NCI_CGAP_Br1.1"
/sex="female, pooled"
/tissue_type="breast"
/lab_host="PH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 197
                                                                                                                                                                                                                                                                                                /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 104
Smmert-Buck, M.D., Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               th 27.3%;
| Similarity 99.1%;
| 558; Conservative
                                                                                                                                                                                   Insert Length: 1268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              80 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        497
                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Сp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
```

```
Contact: Wilson RK
Washington University School of Medicine
Washington University School of Medicine
4444 Forest Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1800
Fax: 314 286 1810
Email: est@watson.wustl.edu
This clone is available royalty-free through LLNL; contact the
IMAGE Consortium (info@inage.llnl.gov) for further information.
Insert Length: 1171 Scd Error: 0.00
Seq primer: -40M13 fwd. from Amersham
High quality sequence stop: 324.

Location/Qualifiers
1. .505
/organism="Homo saplens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   normalization to a Cot = 5. Library constructed by M.Fatima Bonaldo. This library was constructed from the same fetus as the fetal lung library, Soares fetal lung
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2003 TAGGTAAAACAGGATGTAAAGTTTATATACAAGAATATAAAGTTTATCTGAAATATTTAC 1944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AND 1469 505 bp MRNA EST 01-FEB-1997 ze88f06.s1 Soares fetal heart NbHH19W Homo sapiens CDNA clone 366083 3', mRNA sequence. AA071469
                                                                                                                                                                                                                                                                    Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata; Vertebrata; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases I to 505)
1 (bases I to 505)
1 (bases I, Clark, N., Dubuque, T., Elliston, K., Hawkins, M., Holman, M., Hultman, M., Kucaba, T., Le, M., Lennon, G., Marra, M., Parsons, J., Rifkin, L., Rohlfing, T., Tan, F., Trevaskis, E., Waterston, R., Williamson, A., Wohldmann, P. and Wilson, R. Unpublished (1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2 TAGGTAAAACAGGATGTAAAGTTTATATACAAGAATATAATGTTTATCTGAAATATTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .,
%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 505;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 479; DB 25; Length ou. Pred. No. 0.00e+00;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /dev_stage="19 weeks"
/lab_host="DH10B (ampicillin resistant)"
complement(<1. .>505) 162 t 3 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /clone_lib="Soares fetal heart NDHH19W"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /db_xref="taxon:9606"
                                  1479 AACCAACCAGACCCAAGTCACAG 1457
AACCAACCAGGCCCAAGTCCCAG 579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /sex="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /clone="366083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            23.6%;
99.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NDHL19W
                                                                                                                                                                                                                                                        Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity
nes 498; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                      ORGANISM
557
                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                               KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
                                                                                             RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORIGIN
                                                                                                                                                                                                                                    SOURCE
                                  Cp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sp
```

'n

Fri

g

ე q Сp 임 ç g 요

S g

m

ä

```
Contact: Wilson RK
WashUnwack EST Project
WashIngton University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
Email: estewatson.wustl.edu
This clone is available royalty-free through LLNL; contact the
                                                                                                                                                                                                                                                                                                                                  1456 ACTGTGACTTGGGTCTGGTTGGTTGTTTGTTGTTTTGAGTCAGCTGATTTTCACTTC 1515
                                                                                                                                                                                                                                                                                                                                                                                                             1576 GTCACAAACCCTGTTGAGATAAAGCTGGCTGTTATCTCAACATCTTCATCAGCTCCAGAC 1635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1636 IGAGACTCAGTGTCTAAAGTCTTACAACAATTCATCATTTTATACCTTCAATGGGAACTTA 1695
                                                                                                                                                                                                                                                                        1396 ATGAATATTTTATGAAGTTTAAAAATAGCTCACTTTAAAAGCTAGTTTTGAATAGGTGCA 1455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 25-NOV-1996 EST 25-NOV-1996 260310.rl Soares fetal heart NbHH19W Homo sapiens cDNA clone W92531 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata; Vertebrata; Eutheria; Primates; Catarrhini; Hominidae; Homo. I (bases 1 to 505)
Hillier,L., Clark,N., Dubuque,T., Elliston,K., Hawkins,M., Holman,M., Hultman,M., Kucaba,T., Le,M., Lennon,G., Marra,M., Parsons,J., Rifkin,L., Rohlfing,T., Soares,M., Tan,F., Treyaskis,E., Waterston,R., Williamson,A., Wohldmann,P. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1696 AACTGTTACATGTATCACATTCCAGCTACAATACTTCCATTTATAGAAGCACATTAAACC
                                                                                                                                                                                                                                                                                                              61 ACTGTGACTTGGGTTGGTTGTTGTTGTTTTTGAGTCAGCTGATTTTCACTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241 IGAGACTCAGTGTCTAAGTCTTACAACAATTCATCATTTTATACCTTCAATGGGAACTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          301 AACTGTTACATGTATCACATTCCAGCTACAATACTTCCATTTATTAGAAGCACATTAAACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      361 ATTTCTATAGCATGATTTCTTCAAGTAAAAGGCAAAAGATATAAATTTATAATTGACTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               421 GAGTACTITAAAGCCTTGGTTTAAAACATTTCTTACTTAACTTTTGCAAATTAAACCCATT
                                                                                                                                                                                                                                    1 ATGAATATTTTTATGAAGTTTAAAAATAGCTCACTTTAAAGCTAGTTTTGAATAGGTGCA
                                                                                                                                                                                                                                                                                                                                                                                       121 CCACTGAGGTTGTCATAACATGCAAATTGCTTCAATTTCTCTGTGGCCCCAAACTTGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181 GTCACAAACCCTGTTGAGATAAAGCTGGCTGTTATCTCCAACATCTTCATCAGCTCCAGAC
                                                                                                                                                                                                1;
                                                                                                                                                       Length 480;
                                                                                                                                                                                              0; Indels
                                                                                                                                                     Score 473; DB 22;
Pred. No. 0.00e+00;
0; Mismatches C
 Location/Qualifiers
1. 480
/organism="Homo sapiens"
/clone="278321"
<1. >480
75 g 175
                                                                                                   ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WashU-Merck EST Project
                                                                                                                                                       23.3%;
99.8%;
                                                                                                                                                                                              479; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Unpublished (1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                                                                                           Best Local Similarity
                                                                                                   ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Wilson, R.
                                                                                                 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The
                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4
                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOURCE
                                                                                               BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
JOURNAL
                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                               mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
                                                                                                                   ORIGIN
                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryotae; Metazoa; Eumetazoa; Bilateria; Coelomata; Deuterostomia; Chordata; Vartebrata; Gnathostomata; Osteichthyes; Sarcopterygii; Choanata; Tetrapoda; Amniota; Mammalia; Theria; Eutheria; Archorta; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 480) Hillser, L., Clark, N., Dubuque, T., Elliston, K., Hawkins, M., Hultman, M., Kucaba, T., Le, M., Lennon, G., Marra, M., Parsons, J., Rifkin, L., Rohlfing, T., Soares, M., Tan, F., Terwaskis, E., Waterston, R., Williamson, A., Wohldmann, P. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Email: estëwatson.wustl.edu
High quality sequence stops: 393
Source: IMAGE Consortium, LLNL
This clone is available royalty-free through LLNL; contact the
IMAGE Consortium (info@image.llnl.gov) for further information.
                                                                                             1823 AAGTACTCAAGTCAATTATAAAATTTATATCTTTGCCTTTTACTTGAAGAAATCATGCT 1764
                                                                                                                                                                         1883 GTAAGCTACAATGGGTTTAATTTGCAAAAGTTAAGTAAGAAATGTTTTAAACAAGGGTTA 1824
                                                                                                                                                                                                                                                                                                                                                                                                         301
                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                          NGAGTCTCAGTCTGGAGCTGATGAAGATGTTNGAGATAACAGCCAGCTTTATCTCAACAG 421
                                                                                                                                                                                                                                                                                                                                                                                     GGTTTGTGACCCACAAGTTTGGGCCACAGAGAAATTGAAGCAATTTGCNTGGTTATGAC 481
182 AAGTACTCAAGTCAATTATAAAATTTATATCTTTTGCCTTTTACTTGAAGAAATCATGCT
                                                                                                                                                     ATAGAAATGGTTAATGTGCTTCTAATAAATGGAAGTATTGTAGCTGGAATGTGATACATG
                                                                                                                                                                                                                              TAACAGTTTAAGTTCCCATTGAAGGTATAAAATGATGAATTGTTGTTAAAGACTTAGACACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Contact: Wilson RK
WashU-Merck EST Project
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    480 bp mRNA EST
Homo sapiens cDNA clone 278321 5'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The WashU-Merck EST Project
Unpublished (1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       482 CACCTCAGIGGGAAGIGAAAAIC 504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                480 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                yy64d09.rl H
N93894
g1266203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Wilson, R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N93894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
JOURNAL
COMMENT
122
                                                                                                                                                   242
                                                                                                                                                                                                                              302
                                                                                                                                                                                                                                                                                                        362
                                                                                                                                                                                                                                                                                                                                                                                     422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOURCE
```

```
source
                                                                       ORGANISM
                                                                                                                             REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNT
                 ACCESSION
                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mRNA
                                           KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                   COMMENT
                                                          SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ςb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                             4;
IMAGE Consortium (info@image.llnl.gov) for further information. Insert Length: 682 Std Error: 0.00 Seq primer: mob.REGA+ET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1402 ATTITIATGAAGTITAAAAATAGCICACTITAAAGCIAGTITIGAATAGGIGCAACTGIG 1461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1702 TACATGTATCACATTCCAGCTACAA-TACTTCCATTTATTA-GAAGCACATTAACCATTT 1759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1642 TCAGTGTCTAAGTCTTACAACAATTCATCATTTTATACCTTCAATGGGAACTTAAAACTGT 1701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1760 CTATAGCATGATTTCTTCAAGTAAAAGGCAAAAGATATAAATTTATAATTGACTTGAGT 1819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1820 ACTITAAGCCCITGTITAAAACATITCTTACTIAACTITITGCAAAITAAACCCAITG-1878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACTTGGGTCTGGTTGTTGTTTGTTTTTGAGTCAGCTGATTTTCACTTCCCACTG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       241 TCAGTGTCTAAGTCTTACAACAATTCATCATTTAATACCTTCAATGGGAACTTAAACTGT 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              301 TACATGTATCACATTCCAGCTACAACTACTTCCATTTATTAAGAAGCACATTAACCATTT 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361 CTATAGCATGATTTCTTCAAGTAAAAGGCAAAAGATATAAATTTTAAATTGACTTGAGT 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          421 ACTITAAGCCTIGITIAAAACAITICITACTITAACTITIGCAAATTAAACCCATIGGIAG 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 ATTITIATGAAGTITAAAAATAGCTCACTITAAAAGCTAGTITIGAATAGGTGCAACTGTG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4;
                                                                                                                                                                                                                                                                                                                                                                                                           Score 472; DB 24; Length 505;
Pred. No. 0.00e+00;
0; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                       /dev_stage="19 weeks"
/lab_host="DH10B (ampicillin resistant)"
                                                                                                                                                                                                                                                                              /clone="357954"
/clone_lib="Soares fetal heart NDHH19W'
                                                                                                                                                                                                                                                                                                                                                                    180 t
                                                                                   /organism="Homo sapiens"
                                         High quality sequence stop: 389.
Location/Qualifiers
                                                                                                                                                                                                                                                                  /db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                  81 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1879 CTTACCTG-TAATATACATAGTAG 1901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481 CCTACCCGGTAATATACATAGTAG 504
                                                                                                                                                                                                                                                                                                             /sex="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 23.3%;
Best Local Similarity 98.8%;
Matches 498; Conservative
                                                                                                                                                                                                                                                                                                                                                                95 c
                                                                                                                                                                                                                                                       NPHL19W
                                                                                                                                                                                                                                                                                                                                                                    Ø
                                                                       source
                                                                                                                                                                                                                                                                                                                                                                 BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                     mRNA
                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                               ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
```

```
Tel: (301) 496-1550
Email: Robert_Strausberg@nih.gov
Tissue Procurement: Christopher Moskaluk, M.D., Ph.D., Michael R.
Emmert-Buck, M.D., Ph.D.
CDNA Library Preparation: M. Bento Soares, Ph.D.
CDNA Library Arrayed by: Greg Lennon, Ph.D.
DNA Sequencing by: Washington University Genome Sequencing Center
Clone distribution: NCI-CGAP clone distribution information can be
found through the I.M.A.G.E. Consortium/LLNL at:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Homo sapiens"
/note="Vector: pT7T3D-Pac (Pharmacia) with a modified
/note="Vector: pT7T3D-Pac (Pharmacia) with a modified
polylinker; lst strand cDNA was prepared from pooled bulk
breast tumor tissue, and was then primed with a Not I -
oligo(dT) primer. Double-stranded cDNA was ligated to Eco
RI adaptors (Pharmacia), digested with Not I and cloned
into the Not I and Eco RI sites of the modified pTTT3
vector. Library is not normalized. (The normalized
version of this library is NOI_CGAP_BT2.) Library was
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                       Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                           1 (bases 1 to 473)
NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap.
National Cancer Institute, Cancer Genome Anatomy Project (CGAP),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2002 AGGTAAAACAGGATGTAAAAGTTTATATACAAGAATATAATGTTTATCTGAAATATTTACA 1943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61 GTGTTGGTTAAAGCAATATTTTTACAACTTTTAAAGGTAAACTACTATGTATATTACAGG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121 TAAGCTACAATGGGTTTAATTTGCAAAAGTTAAGTAAGAAATGTTTTAAACAAGGCTTAA 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181 AGTACTCAAGTCAATTATAAAATTTATATATGCCTTTTACTTGAAGAAATCATGCTA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 AGGTAAAACAGGATGTAAAAGTTTATATACAAGAATATAATGTTTATCTGAAATATTACA 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 473;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 468; DB 8; Length 4/3
Pred. No. 0.00e+00;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Seq primer: -40m13 fwd. ET from Amersham
High quality sequence stop: 472.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     www-bio.llnl.gov/bbrp/image/image.html
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Std Error: 0.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /clone_lib="NCI_CGAP_Br1.1"
/sex="female, pooled"
/tissue_type="breast"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                        Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /db_xref="taxon:9606"
/clone="IMAGE:965620"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   91 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 23.1%;
Best Local Similarity 99.6%;
Matches 470; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Insert Length: 2969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .>473
57 c
                                                                                                                                                                                                                                                                                                                                                     Tumor Gene Index
Unpublished (1997)
mRNA sequence.
AA513750
g2252162
                                                                                                                                            Homo sapiens
                                                                                                                    human.
```

241 TAGAAATGGTTAATGTGCTTCTAATAAATGGAAGTATTGTAGCTGGAATGTGATACATGT 300

g

LOCUS AAS13750 473 bp mRNA EST 20-AUG-1997 DEFINITION nh88g03.s1 NCI_CGAP_Br1.1 Homo sapiens cDNA clone IMAGE:965620,

Ŋ

S

ø

RESULT

421

쉽 S 엄 S 원 DEFINITION

ACCESSION

KEYWORDS

SOURCE

ORGANISM

REFERENCE AUTHORS

TITLE

JOURNAL

COMMENT

```
GTGTTGGTTAAAGCAATATTTTTACAACTTTTAAAGGTAAACTACTATGTATATTACAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1. .460
/organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The WashU-Merck EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unpublished (1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Wilson, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           91382674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ^
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
JOURNAL
COMMENT
                                                                                                                  121
                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NID
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                   Ω
                                                                                                                  g
                                                                                                                                                                ď
                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                       엄
                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note-"Organ: color; Vector: pT7T3D-pac (Pharmacia) with a modified polylinker; 1st strand cDNA was prepared from colon adenocarcinoma, and was then primed with a Not I - coligo(dT) primer. Double-stranded cDNA was ligated to Eco RI adaptors (Pharmacia), digested with Not I and cloned into the Not I and Eco RI sites of the modified pT7T3 vector. Library is normalized. Library was constructed by Bento Soares and M. Fatima Bonaldo."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDNA Library Preparation: M. Bento Soares, Ph.D. CDNA Library Arrayed by: Greg Lennon, Ph.D. DNA Sequencing by: Washington University Genome Sequencing Center Clone distribution: NCI-CGAP clone distribution in Transfer Cone distribution in Transfer Cone distribution in Transfer Cone distribution in Transfer Cone Consortium/LLNL at:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ď
                                                                                                                                                                                                                                                                                                                                                                                               AA857092 474 bp mRNA EST 09-MAR-1998
off2a09:s1 NOI_CGAP_CO8 Homo sapiens cDNA clone IMAGE:1434904 3',
mRNA sequence.
AA857092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens
Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;
Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;
I (bases 1 to 474)
NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap.
National Cancer Institute, Cancer Genome Anatomy Project (CGAP),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2002 AGGTAAAACAGGATGTAAAGTTTATATACAAGAATATAATGTTTATCTGAAATATTTACA 1943
Contact: Robert Strausberg, Ph.D.
Tel: (301) 496-1550
Email: Robert_Strausberg@nih.gov
Tissue Procurement: Christopher Moskaluk, M.D., Ph.D., Michael
Emmert-Buck, M.D., Ph.D.
                                                                                                                                                                420
                                                                   360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 AGGTAAAACAGGATGTAAAAGTTTATATACAAGAATATAATGTTTATCTGAAATATTTACA 60
                                                                                                                                                                                     1702 AACAGTTTAAGTTCCCATTGAAGGTATAAAATGATGAATTGTTGTAAGACTTAGACACTG
                                                                                                                                                             301 AACAGTTTAAGTTCCCATTGAAGGTATAAAATGATGATGTTGTTGTAAGACTTAGACACTG
                                                                                                                                                                                                                                                                                                   1582 IIGIGACCCACAAGIIIGGGCCACAGAGAAAIIGAAGCAAIIIGCAIGIIA 1531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels 1;
                                                                                                                                                                                                                                                         TIGIGACCCACAAGIIIIGGGCCCCAGAGAAAIIGAAGCAAIIIGCAIGIIA 472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 474;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Seq primer: -40ml3 fwd. ET from Amersham
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 468; DB 15;
Pred. No. 0.00e+00;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /tissue_type="adenocarcinoma"
/lab_host="DH10B"
54 c 92 g 157 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ww-bio.llnl.gov/bbrp/image/image.html
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     _Co8_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1. .474
/organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       High quality sequence stop: 464.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /clone="IMAGE:1434904"
/clone_lib="NCI_CGAP_Co
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ch 23.1%;
1 Similarity 99.8%;
474; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Tumor Gene Index
Unpublished (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           92945394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              human.
```

source

FEATURES

Matches

S

ద

BASE COUNT

ORIGIN

```
Contact: Wilson RK
WashD-Merck EST Project
WashD-Merck EST Project
WashIngton University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1800
Email: est@watson.wustl.edu
This clone is available royalty-free through LLNL; contact the
INAGE Consortium (info@image.llnl.gov) for further information.
Insert Length: 1550 Std Error: 0.00
Seq primer: mob.REGA+ET
High quality sequence stop: 384.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1822 AGTACTCAAGTCAATTATAAAATTTATATCTTTTGCCTTTTACTTGAAGAAATCATGCTA 1763
                                                                                                                                                                                                                                                                                                                                                                                                                                                          1643
1942 GIGITGGITAAAGCAATATITITACAACITITAAAGGTAAACIACTATGTATATACAGG 1883
                                                                                                       240
                                                                                                                                                                                                                                                                                             300
                                                                                                                                                                                                                                                                                                                                                                                                     360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1642 AGICTCAGICTGGAGCTGATGAAGATGTTGAGATAACAGCCAGCTTTATCTCAACAGGGT 1583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       W/2225 460 bp mRNA EST 17-OCT-1996
2d70e11.s1 Soares fetal heart NbHH19W Homo sapiens cDNA clone
346028 3', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryotae, mitochondrial eukaryotes; Metazoa; Chordata; Vertebrata; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 460)
Hillier,L., Clark,N., Dubuque,T., Elliston,K., Hawkins,M., Helman,M., Hultman,M., Kucaba,T., Le,M., Lennon,G., Marra,M., Parsons,J., Rifkin,L., Rohlfing,T., Soares,M., Tan,F., Treyaskis,E., Waterston,R., Williamson,A., Wohldmann,P. and
                                                                                                                                                                                                                                                                                                                            181 AGTACTCAAGTCAATTATAAAATTTATATCTTTTGCCTTTTTACTTGAAGAAATCATGCTA
                                                                                                                                                                                                                                                                                             241 TAGAAATGGTTAATGTGCTTCTAATAAATGGAAGTATTGTAGCTGGAATGTGATACATGT
                                                                                                                                                                                                                                                                                                                                                                                                     301 AACAGTTTAAGTTCCCATTGAAGGTATAAAATGATGATGTTGTTAGACTTAGACACTG
                                                                              TAAGCTACAATGGGTTTAATTTGCAAAAGTTAAGTAAGAAATGTTTAAAACAAGGCTTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1582 TIGTGACCCACAAGTITGGGCCACAGAGAAAATTGAAGCAATTTGCATGTTATGA 1528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          421 ITGIGACC-ACAAGITIGGGCCACAGAGAAATIGAAGCAATITGCATGITATGA 474
```

ဖ

Fri Nov

```
Ĥ
normalization to a Cot = 5. Library constructed by M.Fatima Bonaldo. This library was constructed from the same fetus as the fetal lung library, Soares fetal lung
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hillier, L., Allen, M., Bowles, L., Dubuque, T., Geisel, G., Jost, S., Hillier, L., Allen, M., Le, N., Lenon, G., Marra, M., Martin, J., Moore, B., Schellenberg, K., Steptoe, M., Tan, F., Theising, B., White, Y., Wylie, T., Waterston, R. and Wilson, R. Wheising, B., Wash U. Werck, EST Project 1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AA449300 443 bp mRNA EST 04-JUN-1997
2x08c06.s1 Soares total fetus Nb2HF8 9w Homo sapiens CDNA clone
7858663', mRNA sequence.
                                                                                                                                                                                                                                                                                                                             1866 TAATTIGCAAAAGITAAGIAAGAAAIGITITAAACAAGGCITAAAGIACICAAGICAAIT 1807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1806 ATAAAATTTATATCTTTTGCCTTTTACTTGAAGAAATCATGCTATAGAAATGGTTAATGT 1747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 240
                                                                                                                                                                                                                                                                                                                                                                                                                                             TAATTTGCAAAAGTTAAGTAAGAAATGTTTTAAACAAGGCTTAAAAGTACTCAAGTCAATT 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     420
                                                                                                                                                                                                                                                                                                                                                                          TATITITACAACTITITAAAAGGTAAACTACTATGTATATTACAGGTAAGCTACAATGGGTT 120
                                                                                                                                                                                                                                                                                                         1 AAAGTITAIATACAAGAATAIAAAGTITAATCTGAAATAITIACAGTGTIGGTIAAAGCAA 60
                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                241 GCTTCTAATAAATGGAAGTATTGTAGCTGGAATGTGATACATGTAACAGTTTAAGTTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301 ATTGAAGGTATAAAATGATGAATTCGTTGTAAGACTTAGACACTGAGTCTCAGTCTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATAAAATTTATATCTTTTGCCTTTTACTTGAAGAAATCATGCTATAGAAATGGTTAATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTGATGAAGATGTTGAGATAACAGCCAGCTTTATCTCAACAGGGTTTGTGACCCACAAGT
                                                                                                                                                                                                                                                                         ij
                                                                                                                                                                                                                                          Length 460;
                                                                                                                                                                                                                                      Score 453; DB 24; Length 460
Pred. No. 0.00e+00;
0; Mismatches 0; Indels
                                                                                                                              /dev_stage="19 weeks"
/lab_host="DH10B (ampicillin resistant)"
complement(<1. .>460)
                                                                                  /clone="346028"
/clone_lib="Soares fetal heart NbHH19W"
/sex="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TIGGGCCACAGAGAAATIGAAGCAATTIGCAIGTIAIGA 460
                                                                  /db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Contact: Wilson RK
WashU-Merck EST Project
                                                                                                                                                                                                                                        22.3%;
                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Unpublished (1997)
                                                 NDHL19W.
                                                                                                                                                                                                                                    Query Match
Best Local Similarity
Matches 459; Conserv
                                                                                                                                                                                        ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          92163149
                                                                                                                                                                                       164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         α
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOURCE
ORGANISM
                                                                                                                                                                                   COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1627
                                                                                                                                                                                                                                                                                                                                                                                                          1926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1567
                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                       mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                   BASE CO
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
                                                                                                                                                                                                                                                                                                                                         ď
                                                                                                                                                                                                                                                                                                                                                                          음
                                                                                                                                                                                                                                                                                                                                                                                                        Сp
                                                                                                                                                                                                                                                                                                                                                                                                                                          Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Сp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ζ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Сp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
```

```
AA922948 482 bp mRNA EST 09-JUN-1998 oh10h11.s1 NCI_CGAP_CO8 Homo sapiens cDNA clone IMAGE:1457445 3' similar to TR:008862 008862 SECRETED FRIZZLED RELATED PROTEIN
                                           Email: estewatson.wustl.edu
This clone is available royalty-free through LLNL ; contact the
TMAGE Consortium (infoeimage.llnl.gov) for further information.
Seg primer: -41ml3 fwd. ET from Amersham
High quality sequence stop: 412.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1778
                                                                                                                                                                                                                                                                                                                                                                                                                                                               1717 GAATGTGATACATGTAACAGTTTAAGTTCCCATTGAAGGTATAAAATGATGAATTGTTG- 1659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAATGTGATACATGTAACAGTTTAAGTTCCCATTGAAGGTATAAAATGATGATGTTGG 350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCTGAAATATTTACAGTGTTGGTTAAAGCAATATTTTTACAACTTTTAAAGGTAAACTAC 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 TITITITITITITIAGGTAAAACAGGAIGTAAAGITTATATACAAGAATATAATGITTA 60
                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTAAACAAGGCTTAAAGTACTCAAGTCAATTATAAAATTTATATCTTTTGCCTTTTACTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTAAACAAGGCTTAAAGTACTCAAGTCAATTATAAAATTTATATCTTTTGCCTTTTACTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAAGAAATCATGCTATAGAAATGGTTAATGTGCTTCTAATAAATGGAAGTATTGTAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1;
            Louis, MO 63108
                                                                                                                                                                                                                                                                                                                                                                                                 Length 443;
                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                           ;;
Washington University School of Medicine 4444 Forest Park Parkway, Box 8501, St. I
                                                                                                                                                                                                                                                                                                                                                                                                 Score 434; DB 7;
Pred. No. 0.00e+00;
                                                                                                                                                                                                                                                                                                                                                                                                                          0; Mismatches
                                                                                                                                                                                                                                                                                                                                                               160
                                                                                                                                                                                                                                                                                                                                   complement(<1. .>443)
/db_xref="GDB:5983485"
                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                               83 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITATCICAACAGGGIIIGIGAC 1576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ITTATCTCAACAGGGTTTGTGAC 443
                                                                                                                                                                                                                                                                                                                                                                                                 ch 21.4%;
| Similarity 99.5%;
| 441; Conservative
                                                                                                                                                                                                                                                                                                                                                               47 C
                                                                                                                                                                                                                                                                                                                                                               153
                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 9
LOCUS
DEFINITION
                                                                                                                          source
                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361
                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cp
```

987

7

```
" (bases 1 to 427)
Hillier,L., Allen,M., Bowles,L., Dubuque,T., Geisel,G., Jost,S., Kucaba,T., Lacy,M., Le,N., Lenon,G., Marra,M., Martin,J., Moore,B., Schellenberg,K., Steptoe,M., Tan,F., Theising,B., White,Y., Wylie,T., Waterston,R. and Wilson,R. Theising,B., WashU-Merck Est Project 1997
                                                                                                                                                                                                                              AM431859 427 bp MRNA EST 22-MAY-1997 2451908.sl Soares total fetus Nb2HF8 9w Homo sapiens CDNA clone AA431859 9m RNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Contact: Wilson RK
WashU-Merck EST Project
WashU-Merck EST Project
WashU-Merck EST Project
WashU-Merck EST Project
WashU-Mercaity School of Medicine
Washington University School of Medicine
Washington University School of Medicine
Tel: 314 286 1800
Emai: 34 286 1810
Email: est@watson wustl.edu
This clone is available royalty-free through LLNL; contact the
This clone is available royalty-free through LLNL; contact the
Seq primar: -41m13 fwd. ET from Amersham
High quality sequence stop: 214.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2008 TITITAGGTAAAAAAGGATGTAAAAGTTTATATATACAAGAATATAAATGTTTATCTGAAATA 1949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 ITTTATAGGTAAAACAGGATGTAAAGTTTATATACAAGAATATAATGTTTATCTGAAATA 60
  1046 IGTITCTGTCCCAIGACCAGATAGGGCGCGTTGATGTCGTTCATCTCTCTCACACAGGTGCAC
                                                                      TGTTTCTGTCCCATGACCAGATAGGGCGCGTTGATGTCGTTCATCTCCTCACAGGTGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 427;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /clone_lib="Soares total fetus Nb2HF8 9w"
/dev_stage="8-9 weeks"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 425; DB 5; 1
Pred. No. 0.00e+00;
0; Mismatches 1,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(<1. .>427)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            79 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /clone="773630"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 21.0%;
Best Local Similarity 99.8%;
Matches 426; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Unpublished (1997)
                                                                                                                                                                              986 IGCAAGCIGICITIG 972
                                                                                                                                                     430 IGCAAGCIGICTITG 444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  46
                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  154
                                                                                                                                                                                                                                                                                                                                                                                                                   human.
                                                                                                                                                                                                                                                               10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                    370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                         KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                               RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                   SOURCE
                                                                    셤
                                                                                                              ď
                                                                                                                                                        g
                                                                                                                                                                                                  ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="Organ: colon; Vector: pT7T3D-Pac (Pharmacia) with a modified polylinker; 1st strand cDNA was prepared from colon adenocarcinoma, and was then primed with a Not I oligo(dT) primer. Double-stranded cDNA was ligated to Eco RI adaptors (Pharmacia), digested with Not I and cloned into the Not I and Eco RI sites of the modified pT7T3 vector. Library is normalized. Library was constructed by John States and M. Fatima Bonaldo."
                                                                                                                                                                                                                                                                                                                                                                                                          cDNA Library Preparation: M. Bento Soares, Ph.D. CDNA Library Arrayed by: Greg Lennon, Ph.D. DNA Sequencing by: Washington University Genome Sequencing Center Clone distribution: NGI-GAP clone distribution: NGI-GAP Clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at: www-bio.llnl.gov/bbrp/image/image.html
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                         NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap.
National Cancer Institute, Cancer Genome Anatomy Project (CGAP),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1346 TAGGIGAAAACAGCTATCCACTCCTGIGGCCTTATAACTCAGGAAAIGCTGGGGAIGCAA 1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1286 ACGTGCAAAAGGCAGGGGAAGCTGCCCAGGCTGAGACTGAGAGCTGGAGCTGTGCTT 1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1226 GGGGAACGGGAGCTGAGATCCCGGAGCAGAATGGTCAGCCGTGCTCTGGAGCAGGCCTG 1167
                                                                                                                                                                                                                                                                                                   Contact: Robert Strausberg, Ph.D.
Tel: (301) 496-1550
Email: Robert-Strausberg@nih.gov
Tissue Procurement: Christopher Moskaluk, M.D., Ph.D., Michael
Emmert-Buck, M.D., Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 130 ACGTGCAAAAGGCAGGGGGAAGCTGCCCAGGCTGAGACTGGAGCAGCTAGGAGTGTGCTT 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              70 TAGGIGAAAACAGCIAICCACICCIGIGGCCIIAIAACICAGGAAAIGCIGGGGAIGCAA 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             310 TIGAACICICICICCCCTICIGCCACCGCIICACCGAGGIGAICACCAGCICCCCACCC 369
                                                                                                                             Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;
Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 482)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        190 GGGGAACGGGAGCTGAGATCCCGGAGCAGAAATGGTCAGCCGTGCTCTGGAGCAGGCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         250 TCGGAGCCATCAGGATGCCGGGACTAGCACTTGCGAATGCTGCGGGAGATGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 482;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Insert Length: 870 Std Error: 0.00 Seq primer: -40ml3 fwd. ET from Amersham High quality sequence stop: 377. Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 433; DB 17;
Pred. No. 0.00e+00;
SFRP-2. [2] TR:P97299 ;, mRNA sequence.
AA922948
g3070257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /clone_lib="NCI_CGAP_CO8"
/tissue_type="adenocarcinoma"
/lab_host="DH106"
119 c 127 g 133 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /clone="IMAGE:1457445"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             127 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21.4%;
larity 99.8%;
Conservative
                                                                                                                                                                                                                                     Tumor Gene Index
Unpublished (1997)
                                                                                                            Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           103
                                                                                     human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     434;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BASE COUNT
                                                                                                                                                                                           AUTHORS
TITLE
                   ACCESSION
                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                             KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Сp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Cp
```

ö

ô

œ

121

Cp g Ç 181

g Сp g ď g Сp g S g

```
430 TGAAAGCTGT 439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    YY64d09.s1 F
N64004
                                                                                                     ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGCAAGCTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               91211833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N64004
                                                                                                                                                              Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
ACCESSION
                                                                                                   BASE COUNT
ORIGIN
                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                               10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   986
                                                                                                                                                                                                                                                                                                                               20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                       Cp
                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                     Сp
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Сp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Сp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ďΣ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S,
                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="Organ: colon; Vector: pT7T3D-pac (Pharmacia) with a modified polylinker; 1st strand cDNA was prepared from colon adenocarcinoma, and was then primed with a Not I oligo(dT) primer. Double-stranded cDNA was ligated to Eco RI adaptors (Pharmacia), digested with Not I and cloned into the Not I and Eco RI sites of the modified pT7T3 vector. Library is normalized. Library was constructed by Bento Soares and M. Fatima Bonaldo."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ъę
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Center
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDNA Library Preparation: M. Bento Soares, Ph.D. CDNA Library Arrayed by: Greg Lennon, Ph.D. DNA Sequencing by: Washington University Genome Sequencing Cente Clone distribution: NCI-CGAP clone distribution information can found through the I.M.A.G.E. Consortium/LLNL at:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens
Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;
Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;
Irinates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 518)
NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap.
National Cancer Institute, Cancer Genome Anatomy Project (CGAP),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       'n
                                                                                                                                                                                                                                                                                                                                                1708 ACATGTAACAGTTTAAGTTCCCATTGAAGGTATAAAATGATGATGATGTTGTAAGACTTAG 1649
                                                                                                                                                                           1828 GCTTAAAGTACTCAAGTCAATTATAAAATTTATATCTTTGCCTTTTACTTGAAGAAATC 1769
                                                                                                                                                                                                                                                                                   1768 AIGCIATAGAAAIGGIIAAIGIGCIICTAAIAAAIGGAAGIAIIGIAGCIGGAAIGIGAI 1709
                                                                                                                                                                                                                                                                                                                                                                                                                                1948 ITTACAGTGTTGGTTAAAGCAATATTTTTACAACTTTTAAAGGTAAACTACTATGTATAT 1889
                                                                                                                    Contact: Robert Strausberg, Ph.D.
Tel: (301) 496-1550
Email: Robert-Strausberg@nih.gov
Tissue Procurement: Christopher Moskaluk, M.D., Ph.D., Michael
Emmert-Buck, M.D., Ph.D.
                                                                                                                                                              240
                                                                                                                                                                                                                                                                                                                               360
                                                                                                                                                                                                                                               300
                                                                              AA927991 518 bp mRNA EST 23-JUN-1998 on47d08.s1 NCI_CGAP_CO8 Homo sapiens cDNA clone IMAGE:1559823.similar to TR:008862 008862 SECRETED FRIZZLED RELATED PROTEIN SFRP-2. [2] TR:P97299 ;, mRNA sequence.
TITACAGTGTTGGTTAAAGCAATATTTTTACAACTTTTAAAAGGTAAACTACTATATAT 120
                                                                                                                                                                                                                                                                                                                           301 ACATGTAACAGTTTAAGTTCCCATTGAAGGTATAAAATGATGAATTGTTGTAAGACTTAG
                                                                                                                                                                                                                                                                                                                                                                                                           GCTTAAAGTACTCAAGTCAATTAAAAATTTATATCTTTTGCCTTTTACTTGAAGAAATC
                                                                                                                                                                                                                                            241 ATGCTATAGAAATGGTTAATGTGCTTCTAATAAATGGAAGTATTGTAGCTGGAATGTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Insert Length: 853 Std Error: 0.00
Seq primer: -40ml3 fwd. Er from Amersham
High quality sequence stop: 194.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1. .518
/organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Tumor Gene Index
Unpublished (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1588 CAGGGTT 1582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            421 CAGGGTT 427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     93076735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    naman.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
```

REFERENCE AUTHORS

TITLE

JOURNAL

COMMENT

FEATURES

ACCESSION

```
Eukaryotae: Metazoa; Eumetazoa; Bilateria; Coelomata; Deuterostomia; Chordata; Vertebrata; Gnathostomata; Osteichthyes; Sarcopterygii; Choanata; Tetrapoda; Amniota; Mammalla; Theria; Eutheria; Archonta; Primates; Catarrhini; Hominidae; Homo. Hiller,L., Clark,N., Dubuque,T., Elliston,K., Hawkins,M., Holman,M., Hultman,M., Kucaba,T., Le,M., Lennon,G., Marra,M., Parsons,J., Rifkin,L., Rohlfing,T., Soares,M., Tan,F.,
                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1047
                                                                                                                                                                                                                                                                                                                                                                                                                                       1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1406 AAAATATTCATGATTTTATTAGTTTGAATATTTCTACAAGATTCGGGTGGGCTTTTCCTT 1347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        987
                                                                                                                                                                                                                                          69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-MAR-1996
                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                          1346 TAGGIGAAAACAGCIAICCACICCIGIGGCCITATAACICAGGAAAIGCIGGGGAIGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TAGGTGAAAACAGCTATCCACTCCTGTGGCCTTATAACTCAGGAAATGCTGGGGATGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                       1286 ACGTGCAAAAGGCAGGGGAAGCTGCCCAGGCTGAGACTGGAGCAGCTAGGAGTGTGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    370 IGITICIGICCCAIGACCAGAIAGGGCGCGTITIAIGICGIICAICIACIACAGGGGCCAC
                                                                                                                                                                                                                                          AAAATATTCATGATTTTATTAGTTTGAATATTTCTACAAGATTCGGGTGGGCTTTTCCTT
                                                                                                                                                                                                                                                                                                                                                                                                  130 ACGTGCAAAAGGCAGGGGAAGCTGCCCAGGCTGAGACTGGAGCAGCTAGGAGTGTGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGGGAACGGGAGCTGAGATCCCGGAGCAGAAATGGTCAGCCGTGCTCTGGAGCAGGCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCGGAGCCATCAGGATGCCGGGACTAGCACTGCAGCTTGCGGATGCTGCGGGAGATGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TIGAACICICICICICCCCTICIGCCACCGCTICGACGAGGIGAICACCAGCICCCCACC
                                                                                                                                                                                                                                                                                                                                                                                                                  ;
                                                                                                                                                             Length 518;
                                                                                                                                                                                                5; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                446 bp mRNA EST
Homo sapiens cDNA clone 278321 3'
                                                                                                                                                             ; DB 18;
0.00e+00;
/db_xref="taxon:9606"
/clone="IMAGE:1559823"
/clone_llb="NOT_CGAP_CO8"
/tissue_type="adenocarcinoma"
/lab_host="DH108"
a 123 c 141 g 142 t
                                                                                                                                                                                                  0; Mismatches
                                                                                                                                                           Score 420;
Pred. No. (
                                                                                                                                                         ch 20.7%;
1 Similarity 98.8%;
425; Conservative
```

g

```
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ø
                                                        Wilson, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                604 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       243
                                                                  TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           303
 AUTHORS
                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                           4;
                                                                                                                                             Email: est@watson.wustl.edu
High quality sequence stops: 225
Source: IMAGE Consortium, LLNL
This clone is available royalty-free through LLNL; contact the
IMAGE Consortium (info@image.llnl.gov) for further information.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2003 TAGGTAAAACAGGATGTAAAGTTTATATACAAGAATATAATGTTTATGTGAAATATTAC 1944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1883 GTAAGCTACAATGGGTTTAATTTGCAAAAGTTAAGAAAATGTTTTAAACAAGGCTTA 1824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1823 AAGTACTCAAGTCAATTATAAAATTTATATCTTTTGCCTTTTAGTTGAAGAAATCATGCT 1764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1943 AGTGTTGGTTAAAGCAATATTTTTACAACTTTTAAAGGTAAACTACTATGTATATTACAG 1884
                                                                                                                                                                                                                                                                                                                                                                                                                                         AGTGTTGGTTAAAGCAATATTTTACAACTTTTAAAGGTAAACTACTATGTATATTACAG 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          242 ATAGAAATGGTTAATGTCCTTCTAATAAATGGAAGTATTGTAGCTGGAATGTGATACATG 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              302 TAACAGTITAAGTICCCATIGAAGGIATAAAATNGAIGAATIGTIGTAAGACCTIAGACA 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TAGGTAAAACAGGATGTAAAGTTTATATACAAGAATATAAATGTTTATCTGAAATATTAC 61
                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 462)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              122 GTAAGCTACAATGGGTTTAATTTGCAAAAGTTAAGTAAGAAATGTTTAAACAAGGCTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    182 AAGTACTCAAGTCAATTAAAAATTTATATCTTTTGCCTTTTACTTGAAGAAATCATGCT
Trevaskis, E., Waterston, R., Williamson, A., Wohldmann, P.
                                                               Contact: Wilson RK
WashU-Merck EST Project
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                           4
                                                                                                                                                                                                                                                                                                                                Length 446;
                                                                                                                                                                                                                                                                                        others
                                                                                                                                                                                                                                                                                                                                                          1; Indels
                                                                                                                                                                                                                                                                                                                             Score 416; DB 22;
Pred. No. 0.00e+00;
                                                                                                                                                                                                                                                                                                                                                          0; Mismatches
                                                                                                                                                                                                                                                                                        u
                                                                                                                                                                                                                                                                                        149
                                                                                                                                                                                                                                 1. 446
/organism="Homo sapiens"
/clone="278321"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1587 AGGITTGTGACCCACAAGTTTGGG 1563
                                                                                                                                                                                                                                                                                        δ
                        The WashU-Merck EST Project Unpublished (1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          422 AGGGTTTGTGACCCNCAAGTTTGGG 446
                                                                                                                                                                                                                                                                                        87
                                                                                                                                                                                                                                                                                                                             ch 20.5%;
1 Similarity 98.9%;
440; Conservative
                                                                                                                                                                                                                                                                                        O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             human.
                                                                                                                                                                                                                                                                                                                               Query Match
Best Local S
                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                             Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                    BASE COUNT
                                                                                                                                                                                                                                                                          mRNA
                                                                                                                                                                                                                                                                                                                                                                                     7
                                                                                                                                                                                                                                                                                                                                                                                                                                         62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                   FEATURES
                                                    COMMENT
                                                                                                                                                                                                                                                                                                    ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    පු
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ω̈́
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
```

```
Contact: Wilson RK
Washu-Merck EST Project
Washington University School of Medicine
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ë
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 66 CTCTGN-TGCAGGTGAAGGACCGCTGCGCCCCGGTCATGTCCGCCTTCGN-TTCCCCTGG 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCCGACATGCTTGAGTGCGACCGTTTCCCCCAGGACAACGACGTTTGCATCCCCCTCCGC 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAAAATAAAAGTGAAGGAGATAACCTACATCAACCGAGATACCAAAATCATCCTGGAAGA 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
Hillier, L., Clark, N., Dubuque, T., Elliston, K., Hawkins, M., Holman, M., Hultman, M., Kucaba, T., Le, M., Lennon, G., Marra, M. Parsons, J., Rifkin, L., Rohlfing, T., Soares, M., Tan, F., Trevaskis, E., Waterston, R., Williamson, A., Wohldmann, P. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TAGCAGN-ACCACCTCCTGCCAGCCACCGAGGAAGCTCCAAAGGTATGTGAAGCCTGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAATAAAAATGATGATGACAACGACATAATGGAAACGCTTTGTAAAAATGATTTTGCACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6 TCGCTCTTCGCCCCCCGTCTGCCTCGATGACCTAGACGAGCCATCCAGCCATGCCACTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ..
Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 462;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /dev_stage="19 weeks"
/lab_host="DH10B (ampicillin resistant)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /clone="346028"
/clone_lib="Soares fetal heart NDHH19W'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 413; DB 24;
Pred. No. 0.00e+00;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      u
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1. .462
/organism="Homo saplens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      106 g
                                                                                                                                                                                            The WashU-Merck EST Project Unpublished (1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /sex="unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20.4%;
98.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .>462
133 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               449; Conservative
```

RESULT

ò 원 ò DEFINITION

ACCESSION

NID KEYWORDS

ORGANISM

REFERENCE

AUTHORS

TITLE JOURNAL

COMMENT

FEATURES

```
double-stranded cDNA was size selected, ligated to ECC RI adapters (Pharmacia), digested with Not I and cloned into the Not I and Eco RI sites of a modified pr773 vector (Pharmacia). Library constructed by Bento Scares and M. Fatima Bonaldo. Library constructed by Bento Scares and M. Fatima Bonaldo.

EWATYOTAGE, METAZOA; EUMETAZOA; BILATERIA; COELOMATA; Deuterostomia; Chordata; Vertebrata; Gnathostomata; Osteichthyes; Sarcopterydii; Choanata; Tetrapoda; Amniota; Mammalla; Theria; Eutheria; Archonta; Primates; Catarrhini; Hominidae; Homo.

El (Bases I to 445)

Hilier, L. Clark, N., Dubuque, T., Elliston, K., Hawkins, M., Holman, M., Hultman, M., Kucaba, T., Le, M., Lennon, G., Marra, M., Parsons, J., Rifkin, L., Rohlfing, T., Soares, M., Tan, F., Trevas, E., Waterston, R., Williamson, A., Wohldmann, P. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          human clone=258826 primer=m13 -40 forward library=Soares placenta
Royweeks 2NbH98to9W vector=pT773D (Pharmacia) with a modified
polylinker host=DH10B (ampicillin resistant) Rsitel=Not I
Rsite2=ECO RI two placentae: one from 8 weeks and another from 9
weeks post conception. 1st strand cDNA was primed with a Not I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      High quality sequence stops: 314 Source: IMAGE Consortium, LLNL This clone is available royalty-free through LLNL; contact the IMAGE Consortium (info@image.llnl.gov) for further information.
                                                                         1950 TATTTACAGTGTTGGTTAAAGCAATATTTTTACAACTTTTAAAAGGTAAACTACTATGTAT 1891
                                               181 AGGCTTAAAGTACTCAAGTCAATTATAAAATTTATATATCTTTTGCCTTTTACTTGAAGAAA 240
                                                                                                                                                                                                                                    241 TCATGCTATAGAAATGGTTAATGTGCTTCTAATAAATGGAAGTATTGTAGCTGGAATGTG 300
                                                                                                                                                                                                                                                                                                                            301 ATACATGTAACAGTTTAAGTTCCCATTGAAGGTATAAAATGATGAATTGTAAGACTT 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Louis, MO 63108
                                                                                                                                                                                                                                                                                                                                                                                                                    N32415 445 bp mRNA EST yw83c06.s1 Homo sapiens cDNA clone 258826 3'. N32415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Contact: Wilson RK
WashU-Merck EST Project
Washington University School of Medicine
444 Forest Park Parkway, Box 8501, St. I
Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ų
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 147

    .445
    /organism="Homo sapiens"
/clone="258826"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    The WashU-Merck EST Project Unpublished (1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Email: est@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Wilson, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            91152814
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mRNA
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Сp
                                                                                            გ
                                                                                                                                          g
                                                                                                                                                                                       ď
                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                               Сp
                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 (bases 1 to 409)
Hillier, L., Allen, M., Bowles, L., Dubuque, T., Geisel, G., Jost, S., Kucaba, T., Lacy, M., Le, N., Lennon, G., Marra, M., Martin, J., Moore, B., Schellenberg, K., Steptoe, M., Tan, F., Theising, B., White, Y., Wylie, T., Waterston, R. and Wilson, R. Washu-Marck Est Project 1997
                                                                                                                                                                                                                             AA449749 409 bp mRNA EST 04-JUN-1997 zx07e10.s1 Scares total fetus Nb2HF8 9w Homo sapiens cDNA clone 785802 3', mRNA sequence. AA449749 g2163499
                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalla; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Email: est@watson.wustl.edu
This clone is available royalty-free through LLNL; contact the
This clone is available royalty-free through LLNL; contact the
TMAGE consortium (info@mage.llnl.gov) for further information.
Seq primer: -41ml3 fwd. ET from Amersham
High quality sequence stop: 408.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2010 TITITITAGGTAAAACAGGATGTAAAGTTTATATACAAGAATATAATGTTTATCTGAAA 1951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TATTTACAGTGTTGGTTAAAGCAATATTTTACAACTTTTAAAGGTAAACTACTATGTAT 120
                          363 CCAAGAGCAAGACCATTTACAAGCTGAACGGTGTGTCCGAAAGGGACCTTGAAGAAATCG 422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 TTTTTTTAGGTAAAACAGGATGTAAAAGTTTATATATACAAGAATATAATGTTTATCTGAAA 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Contact: Wilson RK
Washu-Merck EST Project
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 409; DB 7; Length 405, Pred. No. 0.00e+00; ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /clone_lib="Soares total fetus Nb2HF8 9w"
/dev_stage="8-9 weeks"
                                                                                                                  961 GIGCIGIGGCICAAAGACAGCIIGCAGCTGCACCTGIGA 998
                                                                                          423 GIGCIGIGGCICAAAGACAGCIIGCAGIGCACCIGIGA 460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 144 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement(<1. .>409)
/db_xref="GDB:5983421"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               75 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /lab_host-"DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity 100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 42 C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              409; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1. .409
                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 148
                                                                                                                                                                                                                                                                                                                                                                         numan.
```

BASE COUNT

ORIGIN

mRNA

Matches

61

g

ე

g

10-JAN-1996

```
Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sequence.
AA505877
92242014
                                                                                                                                                                                                                                       75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      human.
                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                              Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                       BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  417
                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     298
                                                                                                                                                                                                            mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                    ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                          엄
                                                                                                                                                                                                                                                                                                                                                                                                                                               요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ~
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AA449032 562 bp mRNA EST 04-JUN-1997 zx07e10.rl Scares total fetus Nb2HFB 9w Homo sapiens cDNA clone 785802 5' similar to TR:G310115 G310115 FRIZZLED PROTEIN HOMOLOG PRECURSOR; mRNA sequence.
AA449032 92163052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               l (bases 1 to 562)
HillarLL. Allen,M., Bowles,L., Dubuque,T., Geisel,G., Jost,S., Kucaba,T., Lacy,M., Lennon,G., Marra,M., Martin,J., Moore,B., Schellenberg,K., Steptoe,M., Tan,F., Theising,B., Wahlte,Y., Wylie,T., Waterston,R. and Wilson,R. Theising,B., Unpublished (EST Project 1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Contact: Wilson RK
WashIngton University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
1444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
141: 314 286 1800
Email: estewatson.wustl.edu
This clone is available royalty-free through LLNL; contact the
IMAGE Consortium (info@image.llnl.gov) for further information.
Seq primer: -28ml3 rev2 ET from Amersham
High quality sequence stop: 467.
                                                                                                                       1998 AAAACAGGATGTAAAAGTTTATATATACAAGAATATAAATGTTTATCTGAAATATTACAGTGT 1939
                                                                                                                                                                                           1878 CTACAATGGGTTTAATTTGCAAAAGTTAAGTAAGAAATGTTTTAAACAAGGCTTAAAGTA 1819
                                                                                                                                                                                                                                                                                                                                                                             GITTAAGTICCCATTGAAGGTATAAAATGATGAATTGTTGTAAGACTTAGACACTG-AGT 1640
                                                                                                                                                                                                                                                                                                                                                                                                                                 1639 CTCAGTCTGG-AGCTGATGATGTTGAGATAACAGCCAGCTTTATCTC-AACAGGG-T 1583
                                                                                                                                                                              CTACAATGGGTTTAATTTGCAAAAGTTAAGTAAGAAATGTTTTAAACAAGGCTTAAAGTA 180
                                                                                                                                                                                                                                                                                                                                                                                                        9
                                         Gaps
                                                                                                                                                                                                                                                                                                                                                GTTTAAGTTCCCATTGAAGGTATAAAATGATGAATGTTGTAAGACTTAGACACTGGAGT
                                                                  1 AAAACAGGATGTAAAGTTTATATACAAGAATATAATGTTTATCTGAAATATTTACAGTGT
                                         4
              Length 445;
                                      Indels
Score 408; DB 21; L. Pred. No. 0.00e+00;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TIGIGACCCACAAGITIGGG 1563
                                                                                                                                                                                                                                                                                                                                                                                                                                                             TIGIGACCCACAGGITITGG 440
            20.1%;
98.6%;
                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens
                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                human.
                                      434;
           Query Match
Best Local S:
Matches 434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                       61
                                                                                                                                                  1938
                                                                                                                                                                              121
                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                              1818
                                                                                                                                                                                                                                                                                                                     1758
                                                                                                                                                                                                                                                                                                                                                                           1698
                                                                                                                                                                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                           241
                                                                                                                                                                                                                                                                                                                                                                                                       361
                                                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                               ζ'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                     ద
                                                                                                                                                  S
                                                                                                                                                                            임
                                                                                                                                                                                                      S
                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                              ე
                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                  Сp
                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                          ე
                                                                                                                                                                                                                                                                                                                                                                                                    엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ద
```

/organism="Homo sapiens" /note="Vector: pT7T3D-Pac (Pharmacia) with a modified

```
AA505877 405 bp mRNA EST 20-AUG-1997 ni01a05.s1 NCI_CGAP_Br2 Homo sapiens cDNA clone IMAGE:966704, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                     ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 (bases 1 to 405)
NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap.
National Cancer Institute, Cancer Genome Anatomy Project (CGAP),
Tumor Gene Index
Uppublished (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCGCGGGCTCTTCCTCTTTGGCCAGCCCGACTTCTCCTACAAGCGCAG-AATTGCAAGCC 356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           81
                                                                                                                                                                                                                                                                                                                                                                                                                                       1 GCTCATTCTGCTCCCCCGGGTCGGAGCCCCCGGGAGCTGCGCGCGGGGCTTGCAGCGC-TC 59
                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                              22 GCTCATTCTGCTCCCCCCGGGTCGGAGCCCCCCGGAGCTGCGCGCGGGGCTTGCAGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60 GCCCGCGTGTCCTCCCGGTGTCCCGCTTCTCCGCGCCCCCAGCCGCCGG-TGCCAGCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   119 CGGGGCCCCGAGTCGCACCCAGCGAAGAGAGCGGGCCCGGGACAAGCTCGAACTCCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                179 GCCTCGCCCTTCCCCGGCTCCGCTCCTCTCGCGCTCGGG-TCGCGCGCCCACGATGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 201 GCCTCGCCCTTCCCCGGCTCCGCTCCCTCTGCCCCCTCGGGGTCGCGCGCCCACGATGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      261 GCAGGGCCCTGGCTGCTGCTGCTCTTCCTCGCCTCGCACTGCTGCCTGGGCTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            321 GCGCGGGCTCTTCCTCTTTGGCCAGCCCGACTTCTCCTACAAGCGCAGCAATTGCAAAGCC
                                                                                                                                                                                                                                                                                                                                                                                                     ..
...
                                                                                                                                                                                                                                                                                                                                                                Length 562;
                                                                                                                                                                                                        /cloud-lib="Sources total fetus Nb2HFB 9w"
/dev_stage="8-9 weeks"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                              Score 407; DB 7; Length 562
Pred. No. 0.00e+00;
0; Mismatches 3; Indels
                                                                                                                                                                                                                                                                                                           86
                                                                                                                                                                                                                                                                                          /db_xref="GDB:5983421"
232 c 157 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCTGCTGGGCCACGAGACCATGAAGCAG 444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        441 ccrecrescenceaeccargaaggag 468
                                                                                                                                                                                                                                                                                                               ۵
                                                                                                                                                                                                                                                                                                                                                                ch 20.1%;
1 Similarity 98.2%;
440; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
```

```
Contact: Robert Strausberg, Ph.D.
Tel: (301) 496-1550
Email: Robert_Strausbergenih.gov
Email: Robert_Strausbergenih.gov
Trissue Procurement: L. Jeffrey Medeiros, M.D., Michael R.
Emmert_Buck, M.D., Ph.D.
CDNA Library Preparation: Stratagene, Inc.
CDNA Library Arrayed by: Greg Lennon, Ph.D.
DNA Sequencing by: Washington University Genome Sequencing Center
Clone distribution: NII-CGAP clone distribution information can be
found through the I.M.A.G.E. Consortium/LLNL at:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTCGAGTTTTTTTTTTTTTT 3' Average insert size: 1.0 kb.
oq68f09.s1 NCI_CGAP_Kid6 Homo sapiens cDNA clone IMAGE:1591529 3'
                                                                                                                                                 Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Butheria; Primates; Catarrhini; Hominidae; Homo.
I (bases 1 to 408)
NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap.
National Cancer Institute, Cancer Genome Anatomy Project (CGAP),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="Organ: kidney, Vector: Bluescript SK-; Site_1:
BCORI: Site_2: Xhor; Choned unidirectionally. Primer:
Oligo dr. Pooled kidney tumors. 5' adaptor sequence: 5'
GAATTCGGCACGAG 3' 3' adaptor sequence: 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1277 TTTTGCACGTTTGCATCCCCAGCATTTCCTGAGTTATAAGGCCACAGGAGTGGATAGCTG 1336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1097 GAGAGTTCAAGCGCATCTCCCGCAGCATCCGCAAGCTGCAGTGCTAGTCCCGGCATCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61 ATGGCTCCGACAG-CCTGCTCCAGAGCACGGCTGACCATTCTGCTCCGGGATCTCAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 GAGAGTICAAGCGCATCTCCCGCAGCATCCGCAAGCTGCAGTGCTAGTCCCGGCATCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1157 ATGGCTCCGACAGGCCTGCTCCAGAGCACGGCTGACCATTTCTGCTCCGGGATCTCAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCCGTTCCCCAAGCACACTCCTAGCTGCTCCAGTCTCAGCCTGGGCAGCTTCCCCCTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             180 TTTTGCACGTTTGCATCCCCAGCATTTCCTGAGTTATAAGGCCACAGGAGTGGATAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     300 TGAATATTTTTATGAAGTTTAAAAATAGCTCACTTTAAAAGCTAGTTTTGAATAGGTGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 240 ITTTCACCTAAAGGAAAAGCCCACCGGAATCTTGTAGAAATATTCAAACTAATAAAATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 402; DB 17; Length 408;
Pred. No. 0.00e+00;
0; Mismatches 0; Indels 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /tissue_type="kidney tumor"
/lab_host="SOLR (kanamycin resistant)"
108 c 90 g 115 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Seg primer: -40ml3 fwd. ET from Amersham High quality sequence stop: 402. Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       www-bio.llnl.gov/bbrp/image/image.html
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /clone_"IMAGE:1591529"
/clone_lib-"NCI_CGAP_Kid6"
/sex-"mixed"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19.8%;
larity 99.8%;
Conservative
                                                                                                                                                                                                                                                                                    Unpublished (1997)
                                                                                                                                                                                                                                                                Tumor Gene Index
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1. .408
                  mRNA sequence.
                                                                                                                                   Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
408; Conser
                                                               93152195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       95
                                                                                                               human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local
Matches 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
DEFINITION
                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BASE COUNT
ORIGIN
                                                                                                                                                                                                                     AUTHORS
TITLE
                                                                                                                                                                                                                                                                                    JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       120
                                           ACCESSION
                                                                                                                                                                                                   REFERENCE
                                                                                   KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                          SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                          Center
n can be
                                                                                                                                                                                                                                                                                                                                                                    1...405

J.Organisma—"Homo sapiens"

/note="Vector: pT7T3D-pac (Pharmacia) with a modified

polylinker; lst strand cDNA was prepared from pooled bulk

breast tumor tissue, and was then primed with a Not I -

oligo(dT) primer. Double-stranded cDNA was ligated to Eco

RI adaptors (Pharmacia), digested with Not I and cloned

into the Not I and Eco RI sites of the modified pT7T3

vector. This library is the normalized version of

NCI_CGAP_BRI.1. Library was constructed by Bento Soares

and M. Fatima Bonaldo."
                                                                                                                          CDNA Library Preparation: M. Bento Soares, Ph.D. CDNA Library Arrayed by: Greg Lennon, Ph.D. DNA Sequencing by: Washington University Genome Sequencing Cente Clone distribution: NCI-CGAP clone distribution information can found through the I.M.A.G.E. Consortium/LLNL at:

www-bio.llnl.gov/bbrp/image/image.html
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                      ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1998 AAAACAGGATGTAAAAGTTTATATATACAAGAATATAAATGTTTATCTGAAATATTTACAGTGT 1939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1698 GTTTAAGTTCCCATTGAAGGTATAAAATGATGAATGTTGTAAGACTTAGACACTGAGTC 1639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1818 CTCAAGTCAATTATAAAATTTATATGTTTTGCCTTTTACTTGAAGAAATCATGCTATAGA 1759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1758 AATGGTTAATGTGCTTCTAATAAATGGAAGTATTGTAGCTGGAATGTGATACATGTAACA 1699
                                  Tel: (301) 496-1550
Email: Robert_Strausberg@nih.gov
Tissue Procurement: Christopher Moskaluk, M.D., Ph.D., Michael
Emmert-Buck, M.D., Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGGTTAAAGCAATATTTTTACAACTTTTAAAGGTAAACTACTATGTATATTACAGGTAAG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CICAAGICAATIAIAAAAITIAIAICITIIGCCITIIIACIIGAAGAAAICAIGCIAIAGA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     241 AATGGTTAATGTGCTTCTAATAAATGGAAGTATTGTAGCTGGAATGTGAATACATGTAACA 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           301 GTTTAAGTTCCCATTGAAGGTATAAAATGATGAAGTTGTTGTAAGACTTAGACACTGAGTC 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 AAAACAGGATGTAAAAGTTTATATACAAGAATATAATGTTTATCTGAAATATTTACAGTGT 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                22-MAY-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 405;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361 TCAGTCTGGAGCTGATGAGATGTTGAGATAACAGCCAGCTTTAT 405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EST
                                                                                                                                                                                                                                                                                  Insert Length: 935 Std Error: 0.00
Seq primer: -40ml3 fwd. ET from Amersham
High quality sequence stop: 315.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 405; DB 8;
Pred. No. 0.00e+00;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /clone_lib="NCI_CGAP_Br2"
/sex="female, pooled"
/tissue_type="breast"
/lab_host="DH10B"
                      Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /db_xref="taxon:9606"
/clone="IMAGE:966704"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          74 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity 100.0%; ses 405; Conservation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .>405
43 C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AA976403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IIIRNA
                                                                                                                                                                                                                                                                                                                                                      FEATURES
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ე
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Сp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Cp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Cp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Cp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
```

9

ij

119

1276

239

179

1396

299

ø

Fri Nov

```
1882 TAAGCTACAATGGGTTTAATTTGCAAAAGTTAAGTAAGAAATGTTTTAAACAAGGCTTAA 1823
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 422;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ų
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 366;
                                                                                                                                                                                                                                                                                                                     1642 AGTCTCAGTCTGGAGCTGATGATGT 1615
                                                                                                                                                                                                                                                                                361 AGTCTCAGTCTGGAGCTGATGAGATGT 388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ש
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          18.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           <1. .>422
101 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              108 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mRNA
BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMMENT
                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOURCE
                                     g
                                                                              Сp
                                                                                                                   g
                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="Organ: prostate; Vector: pT713D-Pac (Pharmacia)
with a modified polylinker; 1st strand cDNA was prepared
from normal prostate bulk tissue, and was then prined with
a Not I - oligo(dI) primer. Double-stranded cDNA was
ligated to Eco RI adaptors (Pharmacia), digested with Not
I and cloned into the Not I and Eco RI sites of the
modified pT713 vector. Library is normalized, and was
constructed by Bento Soares and M. Fatima Bonaldo."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Contact: Robert Strausberg, Ph.D.
Tel: (301) 496-1550
Email: Robert_Strausbergenin.gov
Email: Robert_Strausbergenin.gov
Trissue Procurement. Michael J. Brownstein, M.D., Ph.D., Michael R.
Emmert-Buck, M.D., Ph.D.
CDNA Library Preparation: M. Bento Soares, Ph.D.
CDNA Library Arrayed by: Greg Lennon, Ph.D.
DNA Sequencing by: Washington University Genome Sequencing Center
Clone distribution: NI-CGAP clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at:
                                                                                                                                 AA528219 388 bp mRNA EST 05-AUG-1997
nj16h09.s1 NCI_GGAP_Pr22 Homo sapiens cDNA clone IMAGE:986561, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                        1 (bases 1 to 388)
NCI-CGAP http://www.ncb1.nlm.nih.gov/ncicgap.
National Cancer Institute, Cancer Genome Anatomy Project (CGAP),
                                                                                                                                                                                                                                                                                              Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalla; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2002 AGGIAAAACAGGAIGIAAAAGTITATATACAAGAAIATAATAATGTITATCIGAAAITITACA 1943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 GTGTTGGTTAAAGCAATATTTTTACAACTTTTAAAAGGTAAACTACTATGTATATTACAGG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TAAGCTACAATGGGTTTAATTTGCAAAAGTTAAGTAAGAAATGTTTTAAACAAGGCTTAA 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 AGGTAAAACAGGATGTAAAGTTTATATACAAGAATATAATGTTTATCTGAAATATTTACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
              Length 388;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Insert Length: 465 Std Error: 0.00 Seg primer: -40ml3 fwd. ET from Amersham. Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 388; DB 7; I
Pred. No. 0.00e+00;
0; Mismatches 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /tissue_type="normal prostate"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ww-bio.llnl.gov/bbrp/image/image.html
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /clone="IMAGE:986561"
/clone_lib="NCI_CGAP_Pr22"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1. .388
/organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            72 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity 100.0%;
Matches 388; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                      Tumor Gene Index
Unpublished (1997)
                                                                                                                                                                                                                                                                              Homo sapiens
                                                                                                                                                                         sequence.
AA528219
g2270288
                                                                                                                                                                                                                                                           human.
                                                                                                                 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
ORIGIN
                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                  KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMMENT
                                                                                                                 RESULT
              엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
```

```
EST 22-MAX-1997 EST 22-MAX-1997 AVS1908.rl Soares total fetus Nb2HF8 9w Homo sapiens cDNA clone AA431858
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 (bases 1 to 422)
Hillier, L. Allen, M., Bowles, L., Dubuque, T., Geisel, G., Jost, S., Kucaba, T., Lacy, M., Le, N., Lennon, G., Marra, M., Martin, J., Moore, B., Schellenberg, K., Steptoe, M., Tan, F., Theising, B., White, Y., Wylle, T., Waterston, R. and Wilson, R. Washb-Merck EST Project 1997.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Email: estewatson.wustl.edu
This clone is available royalty-free through LLNL ; contact the
This clone is available royalty-free through LLNL ; contact the
TMAGE Consortium (infotimage.llnl.gov) for further information.
Seq primer: -26ml3 rev2 ET from Amersham
High quality sequence stop: 354.
                                                                                                                                                                                             360
241 TAGAAATGGTTAATGCTTCTAATAAATGGAAGTATTGTAGCTGGAATGTGATACATGT
                                                                                                                                                                       301 AACAGTTTAAGTTCCCATTGAAGGTATAAAATGATGAATTGTTGTAAGACTTAGACACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Contact: Wilson RK
Washington University School of Medicine
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /clone_lib="Soares total fetus Nb2HF8 9w"
/dev_stage="8-9 weeks"
/lab_host="DH10B"
```

```
'n
 sequence: 5' GAATTCGGCACGAG
                                                                                                                                    83
                                                                                                                                    р
                                                                                                                                    116
                                                                                                                                                                             18.1%;
ilarity 91.8%;
Conservative
                                                                                                                    .>458
140 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Contact: Wilson RK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   human.
                                                                                                                                                                                                         424;
                                                                                                                                                                              Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
JOURNAL
COMMENT
                                                                                                                                    COUNT
                                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                                                179
                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NID
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                 BASE CO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       염
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 (bases 1 to 458)
Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T.,
Geissl,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M.,
Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B.,
Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Mus musculus"
/strain="657/Bl6"
/strain="657/Bl6"
/note="Vector: pBluescript SK-; Site_1: EcoRI; Site_2:
XhoI; Cloned unidirectionally. Primer: Oligo dT. Average
insert size: 10 kb; Oni-ZAP XR Vector; -5' adaptor
                ij,
                                                                                                                                                                                          1319
                                                                                                                                                                                                                                                    1379
                                                            AA105749 458 bp mRNA EST 04-FEB-1997 m184a03.rl Stratagene mouse Kidney (#937315) Mus musculus cDNA clone 518668 5' similar to TR:G1151260 G1151260 TRANSMEWBRANE AA105749 g1554838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       clone is available royalty-free through LLNL; contact the
                                                                                                     169
                                                                                                                                                                                                                         289
                                                                                                                                                                                                                                                                                                                                           409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IMAGE Consortium (info@image.llnl.gov) for further information.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Murinae:
                                                                                                                                                                                                                                                                                 290 TCAAACTAATAAAATCATGAATATTTTTATGAAGTTTAAAAAATAGCTCACTTTAAAAGCTA 349
                                            51 CTAGTCCCGGCATCCTGATGGCTCCGACAG-CCTGCTCCAGAGCACGGCTGACCATTTCT 109
                Gaps
                                                                                                                                                                                1260 GGCAGCTTCCCCCTGCCTTTTGCACGTTTGCATCCCCAGCATTCCTGAGTTATAAGGCC
                                                                                                                                                                                                                                        110 GCTCCGGGATCTCAGCTCCCGTTCCCCAAGCACTCCTAGCTGCTCCAGTCTCAGCCTG
                                                                                                                                                               170 GGCAGCTTCCCCCTGCCTTTTGCACGTTTGCATCCCCAGCATTTCCTGAGTTATAAGGCC
                                                                                                                                                                                                                         230 ACAGGAGTGGATAGCTGTTTTCACCTAAAGGAAAAGCCCCACCCGAATCTTGTAGAAATAT
                                                                                                                                                                                                                                                                                                                                         350 GTTTTGAATAGGTGCAACTGTGACTTGGTCTGGTTGTTGTTTTTTTGAGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WashU-HHMI Mouse EST Project
Washington University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
Email: mouseest@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata
Vertebrata; Eutheria; Rodentia; Sciurognathi; Muridae;
                ÷
               Indels
               ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               primer: -28m13 rev1 ET from Amersham quality sequence stop: 457.
Location/Qualifiers
 0.00e+00;
               0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Contact: Marra M/Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Waterston, R.
The WashU-HHMI Mouse EST Project
 No.
 Pred.
Local Similarity 99.7%;
tes 372; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Unpublished (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                  410 AGCTGATTTTCAC 422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MGI:312516
Seq primer:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
NID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
                                            g
                                                                                                    g
                                                                                                                                                          g
                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                   음
                                                                        ò
                                                                                                                                                                                          Qγ
                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                      δý
                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                  δ
                                                                                                                                                                                                                                                    ٥y
```

```
4,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryotae: Metazoa; Chordata; Vertebrata; Mammalia; Eutheria; Primates; Catarrhin; Hominidae; Homo.

1 (bases 1 to 378)

Hillier,L., Allen,M., Bowles,L., Dubuque,T., Geisel,G., Jost,S., Kucaba,T., Lacy,M., Le,N., Lennon,G., Marra,M., Martin,J., White,Y., Wylie,T., Waterston,R. and Wilson,R. Theising,B., WashU-Merck Est Project 1997
ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ландын ББТ 16-ОСТ-1997
2488q10.rl Soares total fetus Nb2HF8 9w Homo sapiens CDNA clone
774206 5', mRNA sequence.
AA429960
                                                                                                                                                                                                                                                                                                                                                              357 TCGCACTGAAAATCAAAGTGAAGGAGATAACGTACATCAACAGAGACACCAAGATCATCC 416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 238 CCCTCGCTAGTAG-GACCACCTCCTGCCGGCCACAGAGGAAGCTCCCAAGGTGTGTGAAG 296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        297 CCTGCAAAACCAAGAATGAGGACGACAACGACATCATGGAAACCCTTTGTAAAAATGACT 356
                                                                                                                                                                                                                                                                                           9
 ~3' adaptor sequence:
                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                            TCCCCTGGCCAGACATGCTGGAGTGCGACCGTTTCCCGCAG-ACAACGACCTCTGCATCC
                                                                                                                                                                                                                                                                                         1 AGCAGGCGGCGCCATGGATTCCGCTGGTCATGAAGCAGTGCCACCCGGACACCAAGAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                       GTCACTCGCTCTG-GTGCAGGTGAAGGACCGCTGCGCCCCGGTCATGTCCGCCTTCG-CT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
              4
                                                                                                                                                                                                                      458;
                                                                                                                                                                                                                Score 366; DB 25; Length 45
Pred. No. 0.00e+00;
0; Mismatches 34; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  417 TGGAGACAAAGAGCAAGACCATTTACAAGCTGAACGGCGTGT 458
```

and

```
normalization to a cot = 5. Library constructed by M.Fatima Bonaldo. This library was constructed from the same fetus as the fetal lung library, Soares fetal lung NbHL19W."
                                                                                        Contact: Wilson RK
WashU-Merck EST Project
WashU-Merck EST Project
WashU-Merck EST Project
WashU-Merck EST Project
WashU-Merch University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1810
Emai: 314 286 1810
Emai: est@watson.wustl.edu
This clone is available royalty-free through LLNL; contact the
TMAGE Consortium (info@image.llnl.gov) for further information.
Seq primer: -40M13 fwd. from Amersham
High quality sequence stop: 289.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2000 GTAAAACAGGAIGTAAAGTITATATATACAAGAATATAATGTTTATCTGAAATATTTACAGT 1941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1820 TACTCAAGTCAATTATAAAATTTATATCTTTTGCCTTTTACTTGAAGAAATCATGCTATA 1761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 GITGGTTAAAGCAATATTTTTACAACTTTTAAAGGTAAACTACTATGTATATTACAGGTA 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121 AGCTACAATGGGTTTAATTTGCAAAAGTTAAGTAAGAAATGTTTTAAACAAGGCTTAAAG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181 TACTCAAGTCAATTATAAAATTTATATCTTTTGCCTTTTACTTGAAGAAATCATGCTATA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   241 GAAATGGTTAATGTGCTTCTAATAAATGGAAGTATTGTAGCTGGAATGTGATACATGTAA 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CAGTTTAAGTTTCCCATTGAAGGTATAAAATGATGAATTGTTGTAAGACTTAGACACNGGA 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 GTAAAACAGGATGTAAAAGTTTATATACAAGAATATAATGTTTATCTGAAATATTTACAGT 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Parsons,J., Rifkin,L., Rohlfing,T., Soares,M., Tan,F.,
Trevaskis,E., Waterston,R., Williamson,A., Wohldmann,P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 433;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 363; DB 23; Length 433
Pred. No. 0.00e+00;
0; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /dev_stage="19 weeks"
/lab_host="DH10B (ampicillin resistant)"
complement(<1. .>433)
11 t 4 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /clone_lib="Soares fetal heart NDHH19W"
                                                                                                                                                                                                                                                                                                      /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /db_xref="taxon:9606"
/clone="364962"
                               Wilson, R.
The WashU-Merck EST Project
Unpublished (1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /sex="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ch
1 Similarity 99.2%;
369; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTCTCAGTCNGG 372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local
                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             mRNA
BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                361
                                              TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                       FEATURES
                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ე
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ე
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ე
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Сp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
        ï
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CAACCGAGATACCAAAATCATCCTGGAGACCAAGAGCAAGACCATTTACAAGCTGAACGG 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGTGTCCGAATAGGACCTGAAGAATCGGTGCTGTGGCTCAAAGACACGCTTGCAGTGCAC 365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              633 CCCGGTCATGTCCGCCTTCGGCTTCCCCTGGCCCGACATGCTTGAGTGCGACCGTTTCCC 692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      constructed by Bento Soares and M. Fatima Bonaldo."

/db_xref="taxon:9606"

/clone="774306"

/clone_lb="Soares total fetus Nb2HF8 9w"

/dev_stage="8-9 weeks"

/lab_host="BH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ами24772 433 bp mRNA EST 13-AUG-1996 267610.s1 Scares fetal heart NbHH19W Homo sapiens cDNA clone 3649623', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens
Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 433)
Hillar,L., Clark,N., Dubuque,T., Elliston,K., Hawkins,M.,
Holman,M., Hultman,M., Kucaba,T., Le,M., Lennon,G., Marra,M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7 CCCGGTCATGTCCGCCTTCG-CTTCCCCTGGCCCGACATGCTTGAGTGCGACCGTTTCCC 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGAAACGCTTTGTAAAATGATTTTGCACTGAAAATAAAAGTGAAGGAGATAACCTACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ξ,
                                                                                                                                                                                                                                                                                                                                                                                                                 Length 378;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                Score 362; DB 10; L. Pred. No. 0.00e+00; 0; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                   74 t
                                                                                                                                                                                                                                                                                                                                                                     р
Email: est@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                                                     88
                                                                                                                                                                                                                                                                                                                                                                                                                 17.9%;
99.2%;
                                                                                                                                                                                                                                                                                                                                                                  101
C
                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity 99.2%;
Matches 370; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     993 CTGTGAGGAGATG 1005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    366 CIGIGAGGAGAIG 378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               91489678
                                                                                                                                                                                                                                                                                                                                                                  115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  human.
                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOURCE
ORGANISM
                                                                                             source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
                                                                           FEATURES
```

ద ò g ò g ò а ò g ò g ò g

ò

H

Gaps

., H

```
Other_ESTs: THC180057
Contact: Kerlavage, AR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bioinformatics
                                                                                                                                                                                                                                                                                                                                                                                                            human.
                                                                                                                                                                                                                                   421 T 421
                                                                                                                                                                                                                                                                823 T 823
                                                                                                                                                                                                                                                                                                              25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Source
                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                          301 (
                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                             241
                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
                                                                                                                                                                                                                                                                                                                               LOCUS
                                        g
                                                                           ò
                                                                                                       셤
                                                                                                                                        ö
                                                                                                                                                                    a
                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                ò
                                         H87071 426 bp mRNA EST 21-NOV-1995
ys74d07.rl Homo sapiens cDNA clone 220525 5' similar to SP:A45054
A45054 FZ-1=PUTATIVE INTERCELLULAR SIGNAL TRANSDUCER OR TRANSMITTER
                                                                                                                                               Homo sapiens

Eukaryotae; Metazoa; Eumetazoa; Bilateria; Coelomata;

Eukaryotae; Mordata; Vertebrata; Gnathostomata; Osteichthyes;

Beuterostomia; Choanata; Tetrapoda; Amniota; Mammalia; Theria;

Eutheria; Archonta; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 426)

Hillier,L., Clark,N., Dubuque,T., Elliston,K., Hawkins,M.,

Holman,M., Hultman,M., Rucaba,T., Le,M., Lennon,G., Marra,M.,

Parsons,J., Rifkin,L., Rohlfing,T., Soares,M., Tan,F.,

Trevaskis,E., Waterston,R., Williamson,A., Wohldmann,P. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Email: estewatson.wustl.edu
High quality sequence stops: 355
Source: IMAGE Consortium, LLNL; contact the
This clone is available royalty free through LLNL; contact the
IMAGE Consortium (info@image.llnl.gov) for further information.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      182 TCCAGCCATGCCACTCGCTCTG-GTGCAGGTGAAAGGACCGCTGCGCCCCGGTCATGTCC 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         407 ACGCCATCGAATACCAGAACATGCGGCTGCCCAACCTGCTGGGCCACGAGACCATGAAGG 466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGGTGCTGGAGCAGGCGGCGCTTGGATCCCGCTGGTCATGAAGCAGTGCCACCCGGACA 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     122 CCAAGAAGTTCCTGTGCTCGTCTTCGCCCCCGTCTGCCTCGATGACCTAGACGAGACCA 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACGCCATNGAATACCAGAACATGCGGCTGCCCAACCTGCTGGGGCCACGAGACCATGAAGG 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Contact: Wilson RK
WashU-Merck EST Project
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ι,
,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 426;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 359, DB 21; Length 426
Pred. No. 0.00e+00;
0; Mismatches 17; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    83 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The WashU-Merck EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /clone="220525"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             17.7%;
larity 94.8%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .>426
128 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Unpublished (1995)
                                                                                                                                                                                                                                                                                                                                           M.Fatima Bonaldo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
Matches 399; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ๙
                                                                                                   н87071
g1068650
EST.
                             24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                              LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           n
                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  527
                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mRNA
                                                                                                                                     KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                              RESULT
                                                                                                                                                     SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
```

```
Tobases 1 to 359)

Sadams, M.D., Kerlavage, A.R., Fleischmann, R.D., Fuldner, R.A.,
Bullt, C.J., Lee, N.H., Kirkness, E.F., Weinfastock, K.G., Gocayne, J.D.,
White, O., Sutton, G., Blake, J. A.,
Fitzgerald, L.M., Fitzhugh, W.M., Fritchman, J.L., Geoghagen, N.S.,
Glodek, A., Gnehm, C.L., Hanna, M.C., Hedblom, E., Hinkle, P.S.Jr.,
Moreno-Palanques, R.F., McDonald, L.A., Nouyen, D. T., Pelligrino, S.M.,
Phillips, C.A., Ryder, S.E., Scott, J.L., Saudek, D.M., Shirley, R.,
Small, K.V., Spriggs, T.A., Utterback, T.R., Weidman, J.F., L.L.Y.,
Bednarik, D.P., Cao, L., Cepeda, M.A., Coleman, T.A., Collins, E.J.,
Dinke, D.F., Feng, D.F., Ferrie, A., Tischer, C., Hadson, P., Kim, A.K.,
Kozak, D.L., Kunsch, C., Hungjun, J., Li, H., Meissner, P.S., Olsen, H.,
Raymond, L., Wall, Y.F., Wing, J., Xu, C., Yu, G.L., Ruben, S.M.,
Dillion, P.J., Fannon, M.R., Rosen, C.A., Haseltine, W.A., Fields, C.,
Fraser, C.M. and Venter, J.C.
Initial assessment of human gene diversity and expression patterns
based upon 83 million nucleotides of cDNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AA295018 359 bp mRNA EST 18-APR-1997
EST100474 Pancreas tumor I Homo sapiens cDNA 5' end, mRNA sequence.
4A295018
91947649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Email: arkerlav@tigr.org
For clone availability, additional sequence and expression
information related to this EST, please check the TIGR Human Gene
Index (http://www.tigr.org/tdb/hgi/hgi.html)
Seq primer: M13 Reverse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="Organ: pancreas; Vector: pBluescript SK-; Site_1:
EcoMI: Site_2: XhoI"
/db_xref="ATCC (inhost):190769"
/db_xref="taxon:9606"
/clone_lib="Pancreas tumor I"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens
Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalla; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                CTTTGCATCCCCCTNGNTAGCAGGANCCACCTTCTTGTCAGCCACCGAGGAAGTTNCAAA 360
                                                                                                                                                                                                                                                                                                     361 GGTATGTGAAGCTGNAAAAATTAAAAATGATGATGAACAACGACATAATGGGAAACGNTT 420
                                                                      646 GCCTTCGGCTTCCCCTGGCCCGACATGCTTGAGTGCGACGGTTTCCCCCCAGGACAACGAC
                                                                                                                                                                                            GCCTTCGGTTTCCCCTGGCCCGACATGCTTGAGTGCGACCGTTTCCCCCAGGACAACGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The Institute for Genomic Research 9712 Medical Center Drive, Rockville, MD 20850 USA 171: 3018899056 Fax: 3018699423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1. .359
/organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
```

င် 유 ò g ò g ò g ò ద à

```
16.7%; s.
larity 91.4%; E.
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             and M.Fatima Bonaldo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens
                                                                                                                                                                                                                                                                          Local Similarity
                                                                                                                                                                                                            99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   q880941
                                                                                                                                                                                                                                                                                         412;
                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      27
                                                                                                                                                                                                            BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           357
                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NID
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOURCE
                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                    음
                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mus musculus

Bukaryota, Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;

Rodentia; Sciurognathi; Muridae; Murinae; Mus.

1 (bases 1 to 449)

Marra, M., Hillier, L., Allen, M., Bowles, M., Dietrich, N., Dubuque, T., Geisel, S., Kucaba, T., Lacy, M., Marlin, J., Morris, M., Schellenberg, K., Steptoe, M., Tan, F., Underwood, K., Moors, B., Theising, B., Wylie, T., Lennon, G., Soares, B., Wilson, R. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note-"Organ: gonad; Vector: pT7T3D-Pac (Pharmacia) with a modified polylinker; Site_1: Not I; Site_2: Eco RI; 1st strand cDNA was primed with a Not I - oligo(dT) primer [5'
                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AIO47549 449 bp mRNA EST 08-JUL-1998 uh80b08.rl Scarcs mouse urogenital ridge NMUR Mus musculus cDNA clone 1763991 5' similar to TR:008862 008862 SECRETED FRIZZLED RELATED PROTEIN SFRP-2. [2] TR:P97299 ;, mRNA sequence. AIO47749 g3295836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              jh LLNL ; contact the
further information.
                                                                                                                                                                                                       240
                                                                                                                                                                                                                                                                                                                                                    609 CGTGCAGGTGAAGGACCGCTGCGCCCCGGTCATGTCCGCCTTCGGCTTCCCCTGGCCCGA 668
                                                                                                                                                                                                                                                                       CGACCACCICCIGCCAGCACCGAGGAAGCICCAAAGGIAIGINAAGCCIGCAAAAATAA 180
                                                                                                                                                                                                                                                                                                                                                                                                     AAAAGTGAAGGAGATAACCTACATCAACCGAGATACCAAAATCATCCTGGAGACCAAGAG 300
                                                                                                                                                                                                                                                                                                                                                                                                                                     AAAAGTGAAGGAGATAACCTACATCAACCGAGATACCAAAATCATCCTGGAGACCAAGAG 908
                                                                                                                                              9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  967
                                                                                                               Gaps
                                                                                                                                         1 CGTGCAGGTGAAGGACCGCTGCGCCCGGTCATGTCCGCNTTCGCCTGGCCCGA
                                                                                                                                                                                                                                                                                                                                     AANTGATGATGACACACATAATGGAAACGCTTTGTAAAAATNATTTTGCACTGAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                              63108
                                                                                                             ö
                                                                              Length 359
                                  others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Contact: Marra M/Mouse EST Project
WashD-HHMI Mouse EST Project
WashIngton University School of MedicineP
W444 Forest Park Parkway, Box 8501, St. Louis, MO
Tel: 314 286 1810
Fax: 314 286 1810
                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -free through
                                7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Email: mouseest@watson.wustl.edu
This clone is available royalty-free throug
IMAGE Consortium (info@image.llnl.gov) for
MGI:963515
                                                                            Score 350; DB 4; Les
Pred. No. 0.00e+00;
0; Mismatches 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             primer: -28ml3 rev2 ET from Amersham
                                  ų
                                  89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          High quality sequence stop: 442.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   The WashU-HHMI Mouse EST Project
Unpublished (1996)
                                  b
/dev_stage="adult"
<1. .>359
1 96 c 82 q
                                                                            17.3%;
ilarity 97.8%;
Conservative
                                                                            Query Match
Best Local Similarity
Matches 351; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Waterston, R.
                                ø
      mRNA
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                  849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                   241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
```

```
ø
Bento Soares
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryotae, Metazoa, Eumetazoa, Bilateria, Coelomata,
Deuterostomia, Chordata, Vertebrata, Gnathostomata, Osteichthyes,
Sarcopterygii, Choanata, Tetrapoda, Amniota, Mammalia, Theria,
                                                                                                                                                                                                                                                                                                                                                                                                  236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          493
                                                                                                                                                                                                                                                                                                                177
                                                                                                                                                                                                                                                                                                                                                                                                                          433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   415
                                                                                                                                                                                                                                                            554 CCCCGTCTGCTCGATGACCTAGACGAGACCATCCAGCCATGCCACTCGCTCTGCGTGC 613
                                                                                                                                                                                                                                                1 TCCGGCCGCCTCTCGCTTCCCCCGCTCGGCTCCCTCCGCCCCC-CGGGTACGCTAGTCCA 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              27-JUN-1995
                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                              178 GCAAGCCCATCCCCGCCAACCTGCAGCTGTGC-ACGGCATCGAGTACCAGAACATGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCCCTGTCTGTCTCGACGACCTAGATGAGACCATCCAGCCGTGTCACCCGTCTG-GTGC
                                                                                                                                                                                                                                                                                                                                                 118 GCTCGGCGCGTGGGATCTTCCTTCGGCCAGCCCGACTTCTCCTACAAGCGCACGAACT
                                                                                                                                                                                                                                                                                                                                                                                                               /clone_lib="Soares mouse urogenital ridge NMUR"
/sex="equal ratio of male:female"
/tissue_type="urogenital ridge (embryonic)"
/dev_stage="fetal, mixture of 11.5 and 12.5 dpc
                                                                                                                                                                                                Length 449;
                                                                                                                                                                                                                         32; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            H16121 406 bp mRNA EST
y128c05.rl Homo sapiens cDNA clone 159560 5'
H16121
                                                                                                                                                                                               Score 338; DB 18; 1
Pred. No. 0.00e+00;
0; Mismatches 32;
                                                                                                                                                            86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 127 9
                                                                                                                                               /lab_host="DH10B"
170 c 127
```

```
Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 29
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          29
                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
                 REFERENCE
AUTHORS
                                                                                         TITLE
JOURNAL
                                                                                                                     REFERENCE
AUTHORS
                                                                                                                                                    TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                             COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9966299
EST: EST(expressed sequence tag); Human aorta; similar to none(May
29,1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                       5,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                      High quality sequence stops: 321
Source: IMAGE Consortium, LLNL
This clone is available royalty-free through LLNL; contact the
IMAGE Consortium (info@image.llnl.gov) for further information.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GIGTGICCGAAAGGGACCTGAAGAATCGGTGCTGTGGCTCAAAGACAGCTTGCAGTGCA 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGGAAGCTCCAAAGGTATGTGAAGCCTGCAAAAATAAAAATGATGATGATGACGACAACGACATAA 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121 TGGAAACGCTTTGTAAAAATGATTTTGCACTGAAAATAAAAGTGAAGGAGATAACCTACA 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCAACCGAGATACCAAAATCATCCTGGAGACCAAGAGCAAGACCATTTACAAGCTGAACG 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  692 cccassacarcerrrscarcecerescrascascarcerecrescrascascascascascs 751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         932 GTGTGTCCGAAAGGGACCTGAAGAAATCGGTGCTGTGGCTCAAAGACAGCTTGCAGTGCA 991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 CCCAGGACAACGACCTTTGCATCCCCCTCGCTAGCAGCANCCACCTCCTGCCAGCCACCG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
Eutheria; Archonta; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 406)
Hillier,L., Clark,N., Dubuque,T., Elliston,K., Hawkins,M.,
Holman,M., Hultman,M., Kucaba,T., Le,M., Lennon,G., Marra,M.
Parsons,J., Rifkin,L., Rohlfing,T., Soares,M., Tan,F.,
Treyaskis,E., Waterston,R., Williamson,A., Wohldmann,P. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens cDNA to mRNA, clone_lib:Clontech human aorta mRNA (#6572).
                                                                                                                                                                             School of Medicine
way, Box 8501, St. Louis, MO 63108
                                                                                                                                                                                                                                                                                                                                                                                                                                                       5,
                                                                                                                                                                                                                                                                                                                                                                                                                        Length 406;
                                                                                                                                                                                                                                                                                                                                                                                                         Score 337; DB 20; Length 4vv
Pred. No. 0.00e+00;
....matches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                2 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HUM296B07B 340 bp mRNA EST
Human aorta cDNA 5'-end GEN-296B07, mRNA sequence.
D62525
                                                                                                                                                                                                                                                                                                                                                                                ų
                                                                                                                                                                                                                                                                                                                                                                                77
                                                                                                                                                                                                                                                                                                                                                 /organism="Homo sapiens"/clone="159560"
                                                                                                                                                                                                                                                                                                                                                                            103 g
                                                                                                                                                                                                          Tel: 314 286 1800
Fax: 314 286 1810
Email: est@watson.wustl.edu
                                                                                                      The WashU-Merck EST Project Unpublished (1995)
                                                                                                                                                   Contact: Wilson RK
WashU-Merck EST Project
Washington University Scho
4444 Forest Park Parkway,
                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity 98.1%;
Matches 368; Conservative
                                                                                                                                                                                                                                                                                                                                                                               94 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1048 GGT-GGGGAGCTGGT 1061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361 GGTTGGGGAGCTGGT 375
                                                                                                                                                                                                                                                                                                                                     .406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                ø
                                                                                         Wilson, R.
                                                                                                                                                                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181
               REFERENCE
                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                   COMMENT
                                                                                                                                                                                                                                                                                                                                                                                           ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              염
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
```

```
Submitted (30-MAY-1995) to the DDBJ/EMBL/GenBank databases. Tsutomu Fujiwara, Otsuka GEN Research Institute,Otsuka Pharmaceutical Co., Ltd; 463-10 Kagasuno Kawauchi-cho, Tokushima, Tokushima 771-01, Japan (Tel:0886-65-2888, Fax:0886-37-1035) Submitted (30-May-1995) to DDBJ by: Issutomu Fujiwara
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AA073862 396 bp mRNA EST 15-FEB-1997 mm97f07.rl Stratagene mouse heart (#937316) Mus musculus cDNA clone 536389 5' similar to TR:G1151260 G1151260 TRANSMEMBRANE RECEPTOR.
                               Nagata, M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1856 TTTG-CAAATTAAACCCATTGTAGCTTACCTGTAATATACATAGTAGTTTACCTTTAAAA 1914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /clone_lib="Clontech human aorta polya+ mRNA (#6572)"
64 c 38 g 122 t 3 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
1 (bases 1 to 340)
Fujiwara,T., Hirano,H., Katagiri,T., Kawai,A., Kuga,Y., Nagat Okuno,S., Ozaki,K., Shimizu,F., Shimada,Y., Shinomiya,H., Takaichi,A., Takeda,S., Watanabe,T., Takahashi,E., Hirai,Y., Unpublished(303)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1616 CATCTICATCAGCICCAGACIGAGACICAGIGICIAAAGICITACAACAACAATICAICAITIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 CATCTTCATCAGCTCCAGACTGAGACTCTGAGGTCTTACAACAATTCATCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1796 ATAAATITIATAATIGACTIGAGTACTITIAAGCCTIGITIAAAACATITCITACTIAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITGGCAAATTAAAACCCATTGTAGCTTACCTGTAATATACATAGTRGTTTACCTTTAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mus musculus
Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 340;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                301 GITGIAAAARTAITGCITIRACCAACACIGIAAAIATITC 340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   16.3%; Score 331; DB 6; 98.5%; Pred. No. 0.00e+00;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Homo sapiens"/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                Otsuka GEN Research Institute
Otsuka Pharmaceutical Co.,Ltd
463-10 kagasuno Kawauchi-cho
Tokushima, Tokushima
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                           Unpublished (1995)
2 (bases 1 to 340)
Fujiwara,T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Phone: 0886-65-2888
Fax : 0886-37-1035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local Similarity 98.5%;
Matches 335; Conservative
                                                                                                                                                                                                                    Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ;, mRNA sequence.
AA073862
g1595602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ಥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Japan
```

```
836 ITGCACTGAAAATAAAAGTGAAGGAGATAACCTACATC 873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     107
                                                                                                                                              human.
                                                                                                                               EST
                                         30
                                                                    DEFINITION
                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                  REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                         TITLE
JOURNAL
                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mRNA
                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                     COMMENT
 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                       (bases 1 to 196)
Marra,M., Hillder,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T., Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M., Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B., Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and
                                                                                                                                                                                                                                                                                                                                                                         <u>"</u>
                                                                                                                                                                                 4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
Email: mouseest@watson.wustl.edu
This clone is available royalty-free through LLNL; contact the IMAGE Consortium (info@image.llnl.gov) for further information.
/ertebrata; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCCTGTGCTCGCTCTTCGCCCCTGTCTGTCTCGACGACCTAGATGAGACCATCCAGCCGT 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTCACTCGCTCTG-GTGCAGGTGAAGGACCGCTGCGCCCCGGTCATGTCCGCCTTCGGCT 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCTGCAAAACCAAGAATGAGGACGACAACGACATCATGGAAACCCTTTGTAAAAATGACT 358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 AGCAGGCGGCGCT-GGATTCCGCTGGTCATGAAGCAGTGCCACCCGGACACCAAGAAGT 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCACTCGCTCTGCGTGAAGGACGCTGCGCCCCGGTCATGTCCGCCTTCGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /clone_lib="Stratagene mouse heart (#937316)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 328; DB 26; Length 396;
Pred. No. 0.00e+00;
0; Mismatches 28; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /sex="pooled"
/dev_stage="13 day embryos"
/lab_host="SOLR (kanamycin resistant)"
                                                                                                                                                       Contact: Marra M/Mouse EST Project
WashU-HHMI Mouse EST Project
Washington University School of MedicineP
                                                                                                                                                                                                                                                                                                  Seq primer: -28ml3 rev1 ET from Amersham
High quality sequence stop: 390.
Location/Qualifiers
1. 396
/organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCGCACTGAAAATCAAAGTGAAGGAGATAACGTACATC 396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  74 t
                                                                                               Waterston, R.
The WashU-HHMI Mouse EST Project
Unpublished (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /db_xref="taxon:10090"
/clone="536389"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                103 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ouery Match 16.2%;
Best Local Similarity 92.5%;
Matches 368; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                126 c
                                                                                                             TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          359
                            REFERENCE
                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mRNA
                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
```

```
ŝ
                                                                                                                                                                                                                                                                                                                                                                      Contact: Wilson RK
WashU-Merck EST Project
WashU-Merck EST Project
WashU-Merck EST Project
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
Email: est@watson.wustl.edu
This clone is available royalty-free through LLNL; contact the IMAGE Consortium (info@image.llnl.gov) for further information. Seq primar: -28M13 rev2 from Amersham
High quality sequence stop: 288.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCTGCGCCCCGGTCATGTCCGCCTTCGGNTTCCCCTGGCCCGGAAATGCTTGAGTGCGAC 180
                                                                                                                                                                                                             1 (bases 1 to 414)
Hillier,L., Clark,N., Dubuque,T., Elliston,K., Hawkins,M.,
Holman,M., Hultman,M., Kucaba,T., Le,M., Lennon,G., Marra,M.,
Parsons,J., Rifkin,L., Rohlfing,T., Soares,M., Tan,F.,
Trevaskis,E., Waterston,R., Williamson,A., Wohldmann,P. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9
                                      : 13-AUG-1996
sapiens cDNA clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                          Homo sapiens
Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ς,
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 414;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /lab_host="DH10B (ampicillin resistant)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="taxon:9606"
/clone="364962"
/clone_llb="Soares fetal heart NbHH19W"
/sex="unknown"
z=7/1 414 bp mRNA EST 2e76910.rl Soares fetal heart NbHH19W HOMO 1364962 5', mRNA sequence.
AA024771
F91489677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 329; DB 23; L
Pred. No. 0.00e+00;
0; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ų
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /dev_stage="19 weeks"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  95 g
                                                                                                                                                                                                                                                                                                       Wilson, R.
The WashU-Merck EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 16.2%;
Best Local Similarity 97.8%;
Matches 360; Conservative
                                                                                                                                                                                                                                                                                                                                           Unpublished (1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NDHL19W.
```

ö

9

1886

240

31

DEFINITION

ACCESSION KEYWORDS ORGANISM

REFERENCE AUTHORS

TITLE JOURNAL

COMMENT

626 181 685 241

> g á g ò d ò 염 ö

```
double-stranded cDNA was ligated to Eco RI adaptors (Pharmacia), digested with Not I and cloned into the Not I and Eco RI sites of a modified p1713 vector (Pharmacia). Library went through one round of normalization to a Cot - 20. Library constructed by Bento Soares
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Deuterostomia; Chordata; Vertebrata; Gnathostomata; Osteichthyes; Sarcopterygii; Choanata; Tetrapoda; Amniota; Mammalla; Therla; Eutheria; Archonta; Primates; Catarrhini; Hominidae; Homo.

(bases 1 to 434)
Hiller, L., Clark, N., Dubnque, T., Elliston, K., Hawkins, M., Hulman, M., Kucaba, T., E.M., Lennon, G., Marra, M., Parsons, J., Riffin, L., Rohlfing, T., Soares, M., Tan, F., Treyaskis, E., Waterston, R., Williamson, A., Wohldmann, P. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 High quality sequence stops: 123
Source: IMAGE Consortium, LLNL
This clone is available royalty-free through LLNL; contact the IMAGE Consortium (info@image.llnl.gov) for further information.
Location/Qualifiers
                                                                                                                 2005 TITAGGTAAAACAGGAIGTAAAAGTITAIACAAGAATAIAAATGIITATCIGAAATATIT 1946
                                                                                                                                                                                                                                                               1825 TAAAGTACTCAAGTCAATTATAAAATTTATATCTTTTGCCTTTTACTTGAAGAAATCATG 1766
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1765 CTATAGAAATGGTTAATGTGCTTCTAATAAATGGAAGTATTGTAGCTGGAATGTGATACA 1706
                                                                                                                                                                             61 ACAGTGTTGGTTAAAAGCAATATTTTACAACTTTTAAAAGGTAAACTACTATGTATATTAC 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             human clone=183540 library-Soares breast 3NbHBst vector=pT7T3D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    31-JUL-1995
                                               Gaps
                                                                                                                                                                                                   1945 ACAGIGITIGGITAAAGCAAIAITITTACAACITITAAAGGIAAACIACTATGTAIATIAC
                                                                                                                                                                                                                                                                                                                                                                                                                                              241 CTATAGAGATGGTTAATGTGCTTCTAATAAATGGAAGTATTGTAGCTGGAATGTGATACA
                                                                                      181 TAAAGTACTCAAGTCAATTATAAAATTTATATCTTTTGCCTTTTACTTGGAGAAGTCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Contact: Wilson RK
WashU-Merck EST Project
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
                                               ;;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryotae; Metazoa; Eumetazoa; Bilateria; Coelomata;
    Length 329;
                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  434 bp mRNA EST
Homo sapiens cDNA clone 183540 5'
  Score 323; DB 12; L
Pred. No. 0.00e+00;
0; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1705 TGTAACAGTTTAAGTTCCCATTGAAGGTA 1677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  301 TGTAACAGTTTAAGTTCCCATTGAAGGTA 329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The WashU-Merck EST Project Unpublished (1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Email: est@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and M.Fatima Bonaldo.
ch 15.9%;
1 Similarity 99.1%;
326; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               H44092
Yo73a07.rl F
H44092
g920144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Wilson, R.
  Query Match
Best Local S:
Matches 320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NID
                                                                                        염
                                                                                                                                 Cp
                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                Sp
                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Сb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Primates; Catarrhin; Hominidae; Homo.

I (bases 1 to 329)

Hillier,L., Allen,M., Bowles,L., Dubuque,T., Geisel,G., Jost,S.,
Krizman,D., Kucaba,T., Lacy,M., Le,N., Lennon,G., Marra,M.,
Martin,J., Moore,B., Schellenberg,K., Steptoe,M., Tan,F.,
WashU-NCI human EST Project
Unpublished (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Washington Diversity School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
Email: est@watson.wustl.edu
This clone is available royalty-free through LLNL; contact the
IMAGE Consortium (info@image.llnl.gov) for further information.
Seq primer: -40ml3 fwd. Er from Amersham
High quality sequence stop: 319.
                                                                                                                                                                                                                      360
                                                                                                                                                                                                                                            GCTGCGCCCCGGTCATGTCCGCCTTCGGCTTCCCCTGGCCCG-ACATGCTTGAGTGCGAC 684
                                                               GCCACCGAGGAAGCTCCAAAGGTATGTGAAGCCTGCAAAAATAAAAATGATGATGACAAC 300
                                                                                                                                                      AAVUS737 329 bp mRNA EST 24-DEC-1997
2f41D02.s1 Soares fetal heart NbHH19W Homo sapiens cDNA clone
379467 3', mRNA sequence.
AA705737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
Eukaryotae; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;
                                           CGTTTCCCCCAGGACAACGACCTTTGCATCCCCCTCGCTAGCAGCGACCACCTCCTGCCA
                                                                                                                                                                                                                   301 GACATTAATGGAAACGCTTTGTAAAATGATTTTGCACTTGAAAATTNAAAGTGAAAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /lab_host="DH10B (ampicillin resistant)" 32 c 59 g 118 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /db_xref="GDB:1287723"
/db_xref="taxon:9606"
/clone==379467"
/clone=lb="Soares fetal heart NbHH19W"
/sex="unknown"
/dev_stage="19 weeks"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Contact: Wilson RK
                                                                                                                                                                                                                                                                                                            361 GATAACCT 368
                                                                                                                                                                                                                                                                                                                                     |||||||||||||
861 GATAACCT 868
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             human.
```

Source

FEATURES

BASE COUNT ORIGIN

COUNT

g

엄 δ ద

ò

182

ò g ò a ò g

302

ò g ò g ò

362

```
1. .321 | // Corganisma" | // Morea" | // Norganisma" | // Norganisma = padidymis; Vector: pBluescript SK-; Site_1: // Site_2: XhoI | // Norganisma | // N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AA295688 328 bp mRNA EST 18-APR-1997
EST100887 Pancreas tumor I Homo sapiens cDNA 5' end, mRNA sequence.
91948033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Tolliages 1 to 328)
Adams, M.D., Kerlavage, A.R., Fleischmann, R.D., Fuldner, R.A.,
Bult, C.J., Lee, N.H., Kirkness, E.F., Weinstock, K.G., Gocayne, J.D.,
White, O., Sutton, G., Blacke, J.A., Brandon, R.C., Man-Wal, C.,
Clayton, R.A., Cline, T.R., Cotton, M.D., Earle-Hughes, J., Fine, L.D.,
Fitzgerald, L.M., Fitzhugh, W.M., Fritchman, J.L., Geoghagen, N.S.,
                                                                         Contact: Kerlavage, AR
Bloinformatics
The Institute for Genomic Research
9712 Medical Center Drive, Rockville, MD 20850 USA
1913 018699056
Fax: 3018699056
Fax: 3018699423
Email: arkerlav@tigr.org
For clone availability, additional sequence and expression
Information related to this EST, please check the TIGR Human Gene
Index (http://www.tigr.org/tdb/hgi.html)
Seq primer: M13 Reverse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens
Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalla; Eutheria; Primates; Catarrhin1; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1447 ATAGGTGCAACTGTGACTTGGTTGGTTGTTTGTTGTTTTTGAGTCAGCTGAT 1506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1507 TITCACTICCCACTGAGGTIGTCATAACATGCAAATIGCTTCAATTTTCTCTGTGGCCCA 1566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121 ATAGGTGCAACTGTGACTTGGGTCTGGTTGTTGTTGTTGTTGTTGTTGAGTCAGCTGAT·180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181 ITTCACTTCCCACTGAGGTTGTCATAACATGCAAATTGCTTCAATTTCTCTGTGGCCCA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241 AACTIGIGGGTCACAAACCCTGTTGAGATAAAGCTGGCTGTTATCTCAACATCTTCATCA 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 IGGATAGCIGITITCACCIAAAGGAAAAGCCCACCCGAATCITGIAGAAAIAITCAAACT 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61 AATAAAATCAFGAATATTTTAFGAAGTTTAAAAATAGCTCACTTTAAAGCTAGTTTTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 321; DB 4; Length 321
Pred. No. 0.00e+00;
0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /clone_lib="Epididymus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         63 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /dev_stage="adult"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1627 GCTCCAGACTGAGACTCAGTG 1647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               301 GCTCCAGACTGAGACTCAGTG 321
                                              Other_ESTs: THC180057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 15.8%;
Best Local Similarity 100.0%;
Matches 321; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
0
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ๙
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mRNA
       MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                              COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Adams, M.D., Kerlavage, A.R., Fleischmann, R.D., Fuldner, R.A.,
Bult, C.J., Lee, N.H., Kirkness, E.F., Weinstock, K.G., Gocayne, J.D.,
White, O., Sutton, G., Blake, J.A., Brandon, R.C., Man-Wai, C.,
Clayton, R.A., Cline, T.R., Cotton, M.D., Earle-Hughes, J., Fine, L.D.,
Fitzgerald, L.M., Fitzhugh, W.M., Fritchman, J.L., Geoghagen, N.S.,
Glodek, A., Gnehm, C.L., Hanna, M.C., Hedblom, E., Hinkle, P.S. Jr.,
Kelley, J.M., Kelley, J.C., Liu, L.I., Marmaros, S.M., Merrick, J.M.,
Moreno-Palanques, R.E., Kebonald, L.A., Nguyen, D.T., Pelligrino, S.M.,
Phillips, C.A., Ryder, S.E., Scott, J.L., Saudek, D.M., Shirley, R.,
Small, K.V., Spriggs, T.A., Utterback, T.R., Weidman, J.F., Li, Y.,
Bednarik, D.P., Cao, L., Cepeda, M.A., Colleman, T.A., Collins, E.J.,
Dimke, D., Ferrie, A., Fischer, C., Hastings, G.A.,
Kozak, D.L., Kunsch, C., Hungjun, J., Li, H., Meissner, P., Kim, A.K.,
Kozak, D.L., Kunsch, C., Hungjun, J., Li, H., Meissner, P., S., Olsen, H.,
Raymond, L., Wei, Y.F., Wing, J., Xu, C., Yu, G.L., Ruben, S.M.,
Dillion, P.J., Fannon, M.R., Rosen, C.A., Haseltine, W.A., Fields, C.,
Fraser, C.M. and Venter, J.C.
Initial assessment of human gene diversity and expression patterns
based upon 83 million nucleocides of cDNA sequence
                                                                                                                                                                                                                               Gaps 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1621 TCATCAGCTCCAGACTGAGACTCAGTGTCTAAGTCTTACAACAATTCATCATTTTATACC 1680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1681 TICAAIGGGAACTIAAACIGTTACAIGTAICACATICCAGCIACAAIACTICCATITAATI 1740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1501 GCTGATTTTCACTTCCCACTGAGGTTGTCATAACATGCAAATTGCTTCAATTTTCTCTGT 1560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 122 TCATCAGCTCCAGACTGAGACTCAGTGTCTAAGTCTTACAACAATNCATCATTTTATACC 181
                                                                                                                                                                                                                                                                                                                                                                                                                                               242 AGGAAGCACATTACCATTTCTATAGGCATGATTTCTTCAAGGTAAAAGGGCAAAAGGTA 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TAACTITGGCAAATTAAACCCCTTGTNGGCTTACCCGGTANTITACNGGTGGGTTTACCT 421
                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AA335712 321 bp mRNA EST 21-APR-199°
EST4040158 Epididymus Homo sapiens CDNA 5' end, mRNA sequence.
AA335712
91987953
                                                                                                                                                                                                                                                                                                2 GCTGATTTTCACTTCCCACTGAGGTTGTCATAACATGCAAATTGCTTCAATTTTCTCTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TICAATGGGAACTTAAACTGTTACATGTATCACATTCCAGCTACAATACTTCCATTTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTAAATTTTTATAATTGGACTTGAGGTACTTTTAAGGCCTTGTTTTAAAACATTNCTTACT
                                                                                                                                                                                                                       Indels 12;
                                                                                                                                                      Length 434;
                                                                                                                                              Score 322; DB 20; L/
Pred. No. 0.00e+00;
0; Mismatches 16;
                                          ų
                                      146
                                              δ
                                      72
/clone="183540"
87 c 7
                                                                                                                                              Query Match
Best Local Similarity 93.5%;
Matches 405; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (bases 1 to 321)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1909 TTAAAAGTTGTAA 1921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         422 TTAAAAGTGGTAA 434
                                  124 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             human.
```

33

RESULT

DEFINITION

ACCESSION

KEYWORDS

SOURCE

ORGANISM

REFERENCE AUTHORS JOURNAL

ö

Gaps

. 0

Length 321;

```
Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ø
     H15818
9880638
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              301
     ACCESSION
                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                         KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
Glodek, A., Gnehm, C.L., Hanna, M.C., Hedblom, E., Hinkle, P.S.Jr., Kelley, J.M., Kelley, J.C., Liu, L.T., Marmaros, S.M., Merrick, J.M., Moreno-Palanques, R.F., McDonald, L.A., Mquyen, D.T., Pelligrino, S.M., Phillips, C.A., Ryder, S.E., Scott, J.L., Saudek, D.M., Shirley, R., Small, K.V., Spriggs, T.A., Utterback, T.R., Weldman, J.F., Li, Y., Bednarik, D.E., Cao, L., Cepeda, M.A., Coleman, T.A., Collins, E.J., Dimke, D., Ferrie, A., Fischer, C., Hastings, G.A., Kozak, D.-F., Ferrie, A., Fischer, J., Hudson, P., Kim, A.K., Kozak, D.L., Kunsch, C., Hungjun, J., Li, H., Melssner, P.S., Olsen, H., Raymond, L., Wei, Y.F., Wing, J., Xu, C., Yu, G.L., Ruben, S.M., Dillion, P.J., Fannon, M.R., Rosen, C.A., Haseltine, W.A., Fields, C., Initial assessment of human gene diversity and expression patterns based upon 83 million nucleotides of CDNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                             For clone availability, additional sequence and expression information related to this EST, please check the TIGR Human Gene Index (http://www.tigr.org/tdb/hgi.html)
Seq primer: MI3 Reverses

    .328
    /organism="Homo sapiens"
    /note="Organ: pancreas; Vector: pBluescript SK-; Site_1: EcoRI; Site_2: XhoI"
    /db_xref="Arc( inhost):191138"
    /db_xref="taxon:9606"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1236 CCTAGCTGCTCCAGTCTCAGCCTGGGCAGCTTCCCCCTGCCTTTTGCACGTTTGCATCCC 1295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1476 GGTIGTTGTTGTTGTTTTGAGTCAGCTGATTTTCACTTCCCACTGAGGTTGTCATAACA 1535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61 CAGCATTTCCTGAGTTATAAGGCCACAGGAGTGGATAGCTGTTTTCACCTAAAGGAAAAG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121 NCCACCCGAATCTTGTAGAAATATTCAAACTAATAAAATCATGAATATTTTATGAAGTT 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181 TAAAAATAGCTCACTTTAAAGCTAGTTTTGAATAGGTGCAACTGTGACTTGGGTCTGGTT 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         241 GGTTGTTGTTGTTTTGAGTCAGCTGATTTTCACTTCCCACTGAGGTTGTCATAACA 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCTAGCTGCTCCAGTCTCAGCCTGGGCAGCTTCCCCCTGCCTTTTGCACGTTTGCATCCC 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 328;
                                                                                                                                                                                                                                                                                                                            Contact: Kerlavage, AR
Bioinformatics
The Institute for Genomic Research
712 Medical Center Drive, Rockville, MD 20850 USA
7El: 3018699056
Fax: 3018699423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 320; DB 4; 1
Pred. No. 0.00e+00;
0; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /clone_lib="Pancreas tumor I"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   112 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGCAAATTGCTTCAATTTTTCTCTGTGG 328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /dev_stage="adult"
<1. .>328
                                                                                                                                                                                                                                                                                                                                                                                                                                            Email: arkerlav@tigr.org
                                                                                                                                                                                                                                                                                                          Other_ESTs: THC180057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 15.8%;
Best Local Similarity 99.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   68 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ۵
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 326;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                        MEDLINE
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  පු
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
```

27-JUN-1995

LOCUS H15818 469 bp mRNA EST DEFINITION y128c05.s1 Homo sapiens cDNA clone 159560 3'.

```
Eukaryotae; Metazoa; Eumetazoa; Bilateria; Coelomata;
Deuterostomia; Chordata; Vartebrata; Gnathostomata; Osteichthyes;
Sarcopterygil; Choanata; Tetrapoda; Amniota; Mammalia; Theria;
Eutheria; Archonta; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 469)
11 (bases 1 to 469)
12 (bane, M., Rucaba, T., Elliston, K., Hawkins, M., Hultman, M., Kucaba, T., Elliston, K., Hawkins, M., Parsons, J., Rifkin, L., Rohlfing, T., Soares, M., Tan, F.,
Trevaskis, E., Waterston, R., Williamson, A., Wohldmann, P. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Washington University School of Medicine
444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
Email: est@watson.wustl.edu
High quality sequence stops: 340
Source: IMAGE Consortium, LINL.; contact the
This clone is available royalty-free through LLNL; contact the
IMAGE Consortium (info@image.llnl.gov) for further information.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1883
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2002 AGGTAAAACAGGATGTAAAGTTTATATACAAGAATATAATGTTTATCTGAAATATTTACA 1943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1882 TAAGCTACAATGGGTTTAATTTGCAAAAGTTAAGTAAGAAATGTTTAAACAAGGCTTAA 1823
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IGTAACAGTITAAGGTTCCCATTGAAGGGTATAAAATGATGATGTTGTTGTAAGGNCTTAG 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1822 AGTACTCAAGTCAATTATAAAATTTATATCTTTTGCCTTTTACTTGAAGAAATCATGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1942 GIGTIGGTTABARGCABITTITIACARCTTTTABARGCTARACTACTATGTATATACAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61 GTGTTGGTTAAAGCAATATTTTTACAACTTTTAAAGGTAAACTACTATGTATATTACAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121 TAAGCTACAATGGGTTTAATTTGCAAAAGTTAAGTAAGAAATGTTTAAACAAGGCTTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181 AGTACTCAAGTCAATTATAAAATTTATATTTTGCCTTTTTACTTGAAGAAATCATGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              241 TAGAAATGGTTAATGTGCTTCTAATAAATGGGAAGTATTGTAGGCTGGGAATGTGATACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 AGGTAAAACAGGATTTAAAAGTTTATATACAAGAATATATGTTTATCTGAAATATTTACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 321; DB 20;
Pred. No. 0.00e+00;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 150 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            106 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The WashU-Merck EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Contact: Wilson RK
WashU-Merck EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /clone="159560
65 c l
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity 97.1%;
Matches 370; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Unpublished (1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .469
```

```
Direct Submission Submission Submitted (30-MAY-1995) to the DDBJ/EMBL/GenBank databases. Tsutomu Fujiwara, Otsuka GEN Research Institute,Otsuka Pharmaceutical Co.,Ltd. 463-10 Kagasuno Rawauchl-cho, Tokushima, Tokushima 771-01, Japan (Tel:0886-65-2888, Fax:0886-37-1035) submitted (30-May-1995) to DDBJ by:
                                                                                                                                                                                                                                                                                                           EST; EST(expressed sequence tag); Human aorta; similar to none(May 29,1995).
                                                                                                                                                                                                                                                                                                                                     Homo sapiens cDNA to mRNA, clone_lib:Clontech human aorta polyA+mRNA (#6572).
                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1659 CAACAATICATCATTITATACTTCAATGGGAACTIAAACTGTTACATGTATCACATTCC 1718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1719 AGCTACAATACTTCCATTTATAGAAGCACATTAAACCATTTCTATAGCATGATTTCTTCA 1778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1760 GAAATGGTTAATGTGCTTCTAATAAATGGAAGTATTGTAGCTGGAATGTGATACATGTAA 1701
 1819 ACTCAAGTCAATTATAAAATTTATATCTTTTGCCTTTTACTTGAAGAAATCATGCTATA- 1761
                                       241 GAAATGGTTAATGTGCTTCTAATAAATGGAAGTATTGTAGCTGGAATGTGATACATGTAA 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       69 AGCTACAATACTTCCATTTATTAGAAGCACATTAACCATTTCTATAGCATGATTTCTTCA 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       polyA+ mRNA (#6572)"
7 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                129 AGTAAAAGGCAAAAGATATAAATYTYATA-TTSACTTGAGTACTTTAAGCCCTTGTTAAA 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             188 ACATTTCTTACTTAACTTTTGCAAATTAAACCCATTGTAGCTTACCTGTAATATACATAG 247
                                                                                                                                                                                                                                  21-MAY-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                           To (bases 1 to 330)
Fujiwara,T., Hirano,H., Katagiri,T., Kawai,A., Kuga,Y., Nagai Okuno,S., Ozaki,K., Shimizu,F., Shimada,Y., Shinomiya,H.,
Takaichi,A., Takada,S., Watanabe,T., Takahashi,E., Hirai,Y.,
Maekawa,H., Shin,S. and Nakamura,Y.
Unpublished (303)
Unpublished (1995)
Z. (bases 1 to 330)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9 CAACAATICATCATTTTATACCTTCAATGGGAACTTAAAACTGTTACATGTATCACATTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 330;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Indels
                                                                                                                                                                                                 הטשנאס 330 bp mRNA EST
Human aorta cDNA 5'-end GEN-230F10, mRNA sequence.
D62000
9965776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         aorta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 316; DB 6; 1
Pred. No. 0.00e+00;
6; Mismatches 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ı
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Homo sapiens"
/db_xref="taxon:9606"
/clone_lib="Clontech human
57 c 32 q 118 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Otsuka GEN Research Institute
Otsuka Pharmaceutical Co.,Ltd
463-10 kagasuno Kawauchi-cho
                                                                                                                                     1700 CAGITIAAGITCCCAIIGAAGGIATA 1675
                                                                                                                  301 CAGITIAAGITCCCATIGAAGGIATA 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Tokushima, Tokushima
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                15.6%;
Similarity 97.8%;
316; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Phone: 0886-65-2888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          : 0886-37-1035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Tsutomu Fujiwara
                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ๙
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       316;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Japan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Si
Matches 316
                                                                                                                                                                                                              37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
JOURNAL
                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                           KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMMENT
                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                     g
                                                                            S
                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     合
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                    Eukaryotae: Metazoa; Eumetazoa; Bilateria; Coelomata;
Deuterostomia: Chordata: Vertebrata; Gnathostomata: Osteichthyes;
Sarcopterygii: Choanata: Tetrapoda; Amniota: Mammalia; Theria;
Eutheria: Archorta: Primates: Catarrhini; Hominidae; Homo.

1 (bases 1 to 326)
1 (bases 1, Clark, N., Dubuque, T., Elliston, K., Hawkins, M.,
Hollaen, M., Hultman, M., Kucaba, T., Le, M., Lennon, G., Marra, M.,
Parsons, J., Rifkin, L., Rohlfing, T., Soares, M., Tan, F.,
Trevaskis, E., Waterston, R., Williamson, A., Wohldmann, P. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         High quality sequence stops: 312
Source: IMAGE Consortium, LLNL
This clone is available royalty-free through LLNL; contact the IMAGE Consortium (info@image.llnl.gov) for further information.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1939 TTGGTTAAAGCAATATTTTTACAACTTTTAAAGGTAAACTACTATGTATATTACAGGTAA 1880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ITGGITAAAGCAATATTITACAACTTTTAAAGGTAAACTACTATGTATATTACAGGTAA 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
                                                                                                                10-JAN-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 TAAAACAGGATGTAAAGTTTATATACAAGAATATATATGTTTATCTGAAATATTTACAGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121 GCTACAATGGGTTTAATTTTGCAAAAGTTAAGTAAGAAATGTTTTAAACAAGGCTTAAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACTCAAGTCAATTATAAAATTTATATTTTTTGCCTTTTTACTTGAAGAAATCATGCTATAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Contact: Wilson RK
WashU-Merck EST Project
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 326;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                N32424 326 bp mRNA EST
yw83e07.sl Homo sapiens cDNA clone 258852 3'.
N32424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 319; DB 21; Le
Pred. No. 0.00e+00;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     116 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism-"Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Email: est@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    The WashU-Merck EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     54
                   /clone="258852"
<1. .>326
361 GACACTGAGGTCTCAGTCNGG 381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ch 15.7%;
Similarity 99.7%;
325; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     33 C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unpublished (1995)
                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity
                                                                                                                                                                       91152823
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                            36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mRNA
BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                   NID
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                          RESULT
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORIGIN
 g
                                     Cb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
```

Nagata, M.,

ü

Gaps

US-08-848-439-1.rst

```
(bases 1 to 301)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Phone: 0886-65-2888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 :0886-37-1035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Tsutomu Fujiwara
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .301
                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best_Local Similarity
Matches 300; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Fujiwara, T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Japan
                                                                                                                                                                                                                                                                                                                                                                                                                             Ношо
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                   33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
JOURNAL
                                                                                                                           241
                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                             KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMMENT
                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                                                                                                                                                                                               SOURCE
                            ò
                                                            a
                                                                                             οy
                                                                                                                         a
                                                                                                                                                      ŏ
                                                                                                                                                                                      g
                                                                                                                                                                                                                     οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                               Eukaryotae; Metazoa; Eumetazoa; Bilateria; Coelomata;
Deuterostomia; Chordata; Vertebrata; Gnathostomata; Osteichthyes;
Bearcopterygil; Choanata; Tetrapoda; Amniota; Mammalia; Theria;
Eutheria; Archonta; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 344)
Hillier,L., Clark,N., Dubuque,T., Elliston,K., Hawkins,M., Hollman,M., Hultman,M., Rucaba,T., Le,M., Lennon,G., Marra,M., Parsons,J., Rifkin,L., Rohlfing,T., Soares,M., Tan,F.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Contact: Wilson RK
Washlowerk EST Project
Washlowerk EST Project
Washlower University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
Email: est@watson.wustl.edu
High quality sequence stops: 248
Source: IMAGE Consortium, LLNL
This clone is available royalty-free through LLNL; contact the
IMAGE Consortium (info@image.llnl.gov) for further information.
Location/Qualifiers
1839 ACATTTCTTACTTAACTTTTGCAAATTAAACCCATTGTAGCTTACCTGTAATATACATAG 1898
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1409 TGAAGTTTAAAAATAGCTCACTTTAAAGCTAGTTTTGAATAGGTGCAACTGTGACTTGGG 1468
                                                                            1899 TAGTTTACCTTTAAAAGTTGTAAAAATATTGCTTTAACCAACACTGTAAATATTTCAGAT 1958
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1469 ICTGGTTGGTTGTTGTTGTTGTTTTTGAGTCAGCTGATTTTCACTTCCCACTGAGGTTGT 1528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCTGGTTGGTTGTTTGTTGTTTTGAGTCAGCTGATTTTCACTTCCACTGAGGTTGT 120
                                                                                                                                                                                                      22-FEB-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 TGAAGTTTAAAAATAGCTCACTTTAAAGCTAGTTTTGAATAGGTGCAACTGTGACTTGGG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                              TAGTITACCTTTAAVAGTTGTAAAAATATTGCTTTAACCAACACTGTAAATATTTCAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 344;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 313; DB 22; Length 34
Pred. No. 0.00e+00;
0; Mismatches 2; Indels
                                                                                                                                                                             ...ooss 344 bp mRNA EST.
yw83c06.r1 Homo sapiens cDNA clone 258826 5'.
N56835
gc1200725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             119 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1. .344
/organism="Homo sapiens"
/clone="258826"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            The WashU-Merck EST Project
Unpublished (1995)
                                                                                                                           1959 AAACATTATATTCTTGTATATA 1981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             62
                                                                                                           308 AAACATTATATTCYYGTATAAA 330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15.4%;
llarity 98.3%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20 C
                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Similarity
mes 338; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ๙
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Wilson, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                      38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                      LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                              248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              mRNA
                                                                                                                                                                                                                                                                KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                     RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORIGIN
                                              g
                                                                            ò
                                                                                                           8
                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
```

```
Direct Submission Submitted (07-NOV-1995) to the DDBJ/EMBL/GenBank databases. Tsutomu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Fujiwara, Otsuka GEN Research Institute,Otsuka Pharmaceutical
Co.,Ltd, 463-10 Kagasuno Kawauchi-cho, Tokushima, Tokushima 771-01,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Fujiwara,T., Hirano,H., Katagiri,T., Kawai,A., Kuga,Y., Nagata,M., Okuno,S., Ozaki,K., Shimizu,F., Shimada,Y., Shinomiya,H., Takaichi,A., Takeda,S., Watanabe,T., Takahashi,E., Hirai,Y., Maekawa,H., Shin,S. and Nakamura,Y.
Large-sequencing project at Otsuka GEN Research Institute Unpublished (1995)
2 (bases 1 to 301)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
1529 CATAACATGCAAATTGCTTCAATTTTTCTCTGTGGCCCAAACTTGTGGGTCACAAACCCTG 1588
                                                                                                                                        1589 TTGAGATAAAGCTGGCTGTTATCTCAACATCTTCATCAGGCTCCAGACTGAGACTCAGTGT 1648
                                                                                                                                                                                                                           1649 CTAAGTCTTACAACAATTCATCATTTTATACCTTCAATGGGAACTTAAA-CTG-TTACAT 1706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 ATAGCATGATTTCTTCAAGTAAAAGGCAAAAGATATAAATTTTATAATTGACTTGAGTAC 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EST; EST(expressed sequence tag); Human aorta.
Homo sapiens aorta cDNA to mRNA, clone_lib:human aorta polyA+
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               14-DEC-1995
                                                                                 181 TTGAGATAAAGCTGGCTGTTATCTCAACATCTTCATCAGCTCCAGACTGAGACTCAGTGT
                                                                                                                                                                                                 CTAAGTCTTACAACAATTCATCATTTTATACCTTCAATGGGAACTTAAAACTGGTTCCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 TACATGTATCACATTCCAGCTACAATACTTCCATTTATTAGAAGCACATTAACCATTTCT
                                                                                                             Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 301;
                                                                                                                                                                                                                                                                                                                                                                                                                          асия 203B01B 301 bp mRNA EST
Human aorta cDNA 5'-end GEN-303B01, mRNA sequence.
97180026
                                                                                                                                                                                                                                                                                                                                       1707 GTATCACA-TTCCAGCTACAATACTTCCATTTA-TTAGAAGCAC 1748
                                                                                                                                                                                                                                                                                                          301 GTATCACAATTCCAGCTACAATACTTCCATTTAATTAGANGCAC 344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="Homo sapiens"
/db_xref="taxon:9606"
/clone_lib="human aorta polyA+"
/tlssue_type="aorta" 115 t
51 c 29 g 115 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 299; DB 6; 1
Pred. No. 0.00e+00;
0; Mismatches 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Submitted (7-Nov-1995) to DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Otsuka GEN Research Institute
Otsuka Pharmaceutical CO., Ltd
463-10 Kagasuno Kawauchi-cho
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             14.8%; s.
larity 99.7%; E.
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Tokushima, Tokushima
771-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
```

181

ö 음 ò 셤

40

RESULT

ò

셤

ò

DEFINITION

ACCESSION

KEYWORDS

ORGANISM

AUTHORS TITLE

REFERENCE

JOURNAL

COMMENT

FEATURES

```
Submitted (30-MAY-1995) to the DDBJ/EMBL/GenBank databases. Tsutomu Fujiwara, Otsuka GEN Research Institute,Otsuka Pharmaceutical Co./Ltd; 463-10 Kagasuno Kawauchi-cho, Tokushima, Tokushima 771-01, Japan (Tel:0886-65-2888, FAX:0886-37-1035)
Submitted (30-May-1995) to DDBJ by:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9966369
EST: EST(expressed sequence tag); Human aorta; similar to none(May
29,1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 (bases 1 to 313)
Fullwara, T., Hirano, H., Katagiri, T., Kawai, A., Kuga, Y., Nagata, M., Okuno, S., Ozaki, K., Shimizu, F., Shimada, Y., Shinomiya, H., Takatchi, A., Takada, S., Watanabo, T., Takahashi, E., Hirai, Y., Maekawa, H., Shin, S. and Nakamura, Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens cDNA to mRNA, clone_lib:Clontech human aorta polyA+mRNA (#6572). Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                  1230 GCTTGGGGAACGGGAGCTGAGATCCCGGAGCAGAAATGGTCAGCCGTGCTCTGGAGCAGG 1171
  1410 CATAAAAATATTCATGATTTTATTAGTTTGAATATTTCTACAAGATTCGGGTGGGCTTTT 1351
                                                                                                                                                                                                               1290 GCAAACGTGCAAAAGGCAGGGGGAAGCTGCCCAGGCTGAGACTGGAGCTAGAGCTAGTT 1231
                                                                                                                                                                                                                                                                                                                                                                                                                       1170 CCTGTCGGAGCCATCAGGATGCCGGGACTAGCACTGCAGCTTGCGGATGCTGCGGAGAT 1111
                                                                                                                                  1350 CCTTTAGGTGAAAACAGCTATCCACTCCTGTGGCCTTATAACTCAGGAAATGCTGGGGAT 1291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            polyA+ mRNA (#6572)"
5 others
                                                                                                                                                                                                                                                                                       181 GCTTGGGGAACGGGAGCTGAGATCCCGGAGCAGAAATGGTCAGCCGTGCTCTGGAGCAGG
                                                                                                                                                                                                                                                                                                                                                                                             241 CCTGTCGGAGCCATCAGGATGCCGGGACTAGCACTGCAGCTTGCGGGATGCTGCGGGAGAT
                                                                                                                                                                                     121 GCAAACGIGCAAAAGGCAGGGGGAAGCIGCCCAGGCIGAGACIGGAGCAGCIAGGAGTGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 299; DB 6; Length 313;
Pred. No. 0.00e+00;
5; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HUM304B12B 313 bp mRNA EST
Human aorta cDNA 5'-end GEN-304B12, mRNA sequence.
D62595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 aorta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1. 313
/organism="Homo sapiens"
/db_xref="taxon:9606"
/clone_lib="Clontech human ac
a 56 c 34 g 114 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       114 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Otsuka GEN Research Institute
Otsuka Pharmaceutical Co.,Ltd
463-10 kagasuno Kawauchi-cho
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Tokushima, Tokushima 771-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 14.8%;
Best Local Similarity 97.5%;
Matches 307; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Unpublished (1995)
2 (bases 1 to 313)
Fujiwara,T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Phone: 0886-65-2888
Fax : 0886-37-1035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Tsutomu Fujiwara
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unpublished (303)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Japan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1110 G 1110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  301 G 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BASE COUNT
                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORIGIN
                                                                             g
                                                                                                                                                                               원
                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                          ద
                                                                                                                                                                                                                                                                                                                                                                                                                                               ე
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Anote-Torgan: prostate; Vector: pT7T3D-Pac (Pharmacia) with a modified polylinker; 1st strand cDNA was prepared from normal prostate bulk tissue, and was then primed with a Not I - Olly(dT) primer. Double-stranded cDNA was ligated to Eco RI adaptors (Pharmacia), digested with Not I and cloned into the Not I and Eco RI sites of the modified pT7T3 vector. Library is normalized, and was constructed by Bento Soares and M. Fatima Bonaldo."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Tel: (301) 496-1550
Email: Robert_Strausberg@nih.gov
Tissue Procurement: Michael J. Brownstein, M.D., Ph.D., Michael R.
Emmert-Buck, M.D., Ph.D.
CDNA Library Preparation: M. Bento Soares, Ph.D.
CDNA Library Arrayed by: Greg Lennon, Ph.D.
DNA Sequencing by: Washington University Genome Sequencing Center
Clone distribution: NCI-GAP clone distribution information can be
found through the I.M.A.G.E. Consortium/LLNL at:
www-bio.llnl.gov/bbrp/image/image.html
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens
Eukaryotae: Metazoa: Chordata: Vertebrata; Mammalia; Eutheria;
Eukaryotae: Caterihii; Hominidae; Homo.
1 (bases 1 to 301)
NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap.
National Cancer Institute, Cancer Genome Anatomy Project (CGAP),
                                                                                                                                                                                                  1822 TITAAGCCTTGTTTAAAACATTTCTTACTTAACTTTTGCAAATTAAACCCATTGTAGCTT 1881
                                                                                                                               AA602994 301 bp mRNA EST 08-OCT-1997 np31g01.s1 NCI_CGAP_Pr22 Homo sapiens cDNA clone IMAGE:1117968,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 CATAAAAATATTCATGATTTTATTAGTTTGAATATTTCTACAAGATTCGGGTGGGCTTTT 60
121 TTTAAGCCTTGTTTAAAACATTTCTTACTTAACTTTTGCAAATTAAACCCATTGTAGCTT
                                                                                                     ACCTGTAATATACATAGTAGTTTACCTTTAAGAGTTGTAAAAATATTGCTTTTAACCAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               / Match 14.8%; Score 301; DB 10; Length 301; Local Similarity 100.0%; Pred. No. 0.00e+00; nes 301; Conservative 0; Mismatches 0; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Insert Length: 401 Std Error: 0.00
Seg primer: -40ml3 fwd. ET from Amersham.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /tissuc_type="normal prostate"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       u
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /clone="IMAGE:1117968"
/clone_lib="NCI_CGAP_Pr22"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         96 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unpublished (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Tumor Gene Index
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mRNA_sequence.
AA602994
g2436855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               human.
                                                                                                                                                                                                                                                                                                                                                             2002 T 2002
                                                                                                                                                                                                                                                                                                             301 T 301
```

ä

Gaps

.; ?

Query Match

Matches

셤

BASE COUNT ORIGIN

```
Bioinformatics
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                EST54420 1
                                                                                                                                                                                                                                                                                                                                                 AA347786
                                                                                                                                                                                                                                                                                                                                                                                                   92000261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  96026280
                                                                                                                                                                                                                                                                                                                                                                                                                                  human.
                                                                                                                                                                                                                                                                                                                                                                                                                     EST
                                                                                                                                                                                                                                                                                                                                    43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                             1700
                                                                                                                                                                                                                        1820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE
COMMENT
                                                                                                                            124
                                                               64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                SOURCE
                                                                                                                                                                                                                                                                                                                                                      LOCUS
                                                            g
                                                                                                                           g
                                                                                                                                                          á
                                                                                                                                                                                         g
                                                                                                                                                                                                                                                      QQ
                             ŏ
                                                                                             ò
                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Direct Submission Submitted (30-MaY-1995) to the DDBJ/EMBL/GenBank databases. Tsutomu Fujiwara, Otsuka GEN Research Institute,Otsuka Pharmaceutical Co.,Ltd: 463-10 Kagasuno Kawauchi-cho, Tokushima, Tokushima 771-01, Japan (Tel:0886-65-2888, Fax:0886-37-1035) submitted (30-May-1995) to DDBJ by:
                                                                                                                                                                                                                                                                                                                                                                                                                                                            EST; EST(expressed sequence tag); Human aorta; similar to none(May 29,1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Fujiwara, T., Hirano, H., Katagiri, T., Kawai, A., Kuga, Y., Nagata, M., Okuno, S., Ozaki, K., Shimizu, F., Shimada, Y., Shinomiya, H., Takaichi, A., Takeda, S., Watanabe, T., Takahashi, E., Hirai, Y., Maekawa, H., Shin, S. and Nakamura, Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens cDNA to mRNA, clone_lib:Clontech human aorta polyA+
mRNA (#6572).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                       1755 CATTICTATAGCATGATITCTTCAAGTAAAAGGCAAAAGATATAAATTTTATAATTGGCT 1814
                                                                                                                                                                                                      TGAGTACTITAAGCCTTGTTTAAAACATTTCTTACTTAACTTTTGCAAATTAAACCCATT 1874
                                             61 AAACTGTTACATGTATCACATTCCAGCTACAATACTTCCATTTATTAGAGGCACATTAAC 120
                                                                                                                                                                        TGAGTACTTTAAGCCTTGTTTAAAACATTTCTTACTTAACTTTTGCAA-TTAM-CCCATT 238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Homo sapiens"
/db_xref="taxon:9606"
/clone_lib="clontech human aorta polyA+ mRNA (#6572)"
52 32 9 111 t 3 others
                                                                                                                                                                                                                                       GTAGCTTACCTGTAATATACATAGTAGTTTACCTTTAARVGTTGTAAAAATATTKCTTTA 298
                                                                                                                                                                                                                                                                                                                                                                                                   21-MAY-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                            CATTICIATAGCATGATTICITCAAGTAAAAGGCAAAAGATATAAATTITAATAGACT
                                                                                                                                                                                         ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 298; DB 6; Length 303;
Pred. No. 0.00e+00;
2; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                       num34/H05B 303 bp mRNA EST
Human aorta cDNA 5'-end GEN-347H05, mRNA sequence.
9966773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Otsuka Pharmaceutical Co., Ltd
463-10 kagasuno Kawauchi-cho
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Otsuka GEN Research Institute
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pokushima, Tokushima
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 14.7%;
Best Local Similarity 99.0%;
Matches 297; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Unpublished(303)
Unpublished (1995)
2 (bases 1 to 303)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Phone: 0886-65-2888
Fax : 0886-37-1035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (bases 1 to 303)
                                                                                                                                                                                                                                                                                                                    299 MCCAACACTGTAAAT 313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Isutomu Fujiwara
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pujiwara, T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               771-01
                                                                                                                                                                                                                                                                                                                                                                                  42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
                                                                                                                                                                                                      1815
                                                                                                                                                                                                                                       239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                        181
                                                                                                                                                                                                                                                                    1875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                              KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORIGIN
             ò
                                          염
                                                                                                                                                                    g
                                                                                                                                                                                                                               염
                                                                                                                                                                                                                                                          οy
                                                                                                                                                                                                                                                                                                  8
                                                                           ò
                                                                                                    ద
                                                                                                                                 ογ
                                                                                                                                                                                                      ò
```

```
Adams, M.D., Kerlavage, A.R., Fleischmann, R.D., Fuldner, R.A.,
Bullt, C.J., Lee, N.H., Kirkness, E.F., Weinfstock, K.G., Gocayne, J.D.,
White, O., Sutton, G., Blake, J.A., Brandon, R.C., Man-Wai, C.,
Clayton, R.A., Cline, T.R., Cotton, M.D., Earle-Hughes, J., Fine, L.D.,
Fitzgerald, E.M., Fitzhugi, W.M., Fritchman, J.L., Geoglagen, N.S.,
Glodek, A., Gnehm, C.L., Hanna, M.C., Hedblom, E., Hinkle, P.S.Jr.,
Moreno-Palanques, R.F., Wobonald, L.A., Nauyven, D.T., Pelligatino, S.M.,
Phillips, C.A., Ryder, S.E., Scott, J.L., Saudek, D.M., Shirley, R.
Small, K.V., Spriggs, T.A., Utterback, T.R., Weidman, J.F., Li, Y.,
Bednarik, D.P., Cao, L.L., Cepeda, M.A., Coleman, T.A., Collins, E.J.,
Dimke, D., Fenrie, A., Fischer, C., Hastings, G.A.,
He, W.W., Hu, J.S., Greene, J.M., Gruber, J., Hudson, P., Kim, A.K.,
Dillion, P.J., Kunsch, C., Hungjun, J., Li, H., Melsener, P.S., Olsen, H.,
Raymond, L., Wei, Y. F., Wing, J., Xu, C., Yu, G.L., Ruben, S.M.,
Dillion, P.J., Fannon, M.R., Rosen, C.A., Haseltine, W.A., Fields, C.,
Fraser, C.M., and Venter, J. C.
Initial assessment of human gene diversity and expression patterns
based upon 83 million nucleoctides of CDNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Email: arkerlavetigr.org
For clone availability, additional sequence and expression
information related to this EST, please check the TIGR Human Gene
Index (http://www.tigr.org/tdb/hgi/hgi.html)
Seq primer: M13-21.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                      1819
                                                                                                                                                                                                                                                                                                                                                                                                                                                   1879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21-APR-1997
end, mRNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1880 ITACCTGTAATATACATAGTTTACCTTTAAAAGTTGTAAAAATATTGCTTTAACCAA 1939
                                                                                                                                                                                                                                                                                                                                                                                243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Homo sapiens"
/note="Organ: heart; Vector: pBluescript SK-; Site_1:
DECRI: Site_2: XhoI"
/db_xref="ATCC (inhost):149068"
CTATAGCATGATTTCTTCAAGTAAAAGGCAAAAGATATAAAATTTTATAATTGACTTGAGT
                                                                                                                                                                                                                                                                                                                                                                            184 ACTITAAGCCFTGTTTAAAACATTTCTTACTTAACTTTTGCAAATTAAACCCATTGTAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  244 ITACCIGIAATAIACATAGTTITACCITIAARAGTIGIAAAAGTAITGCITIAACMAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9712 Medical Center Drive, Rockville, MD 20850 USA Tel: 3018699056
Fax: 3018699423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            300 bp mRNA ES
Fetal heart II Homo sapiens cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The Institute for Genomic Research
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Other_ESTS: EST113252 THC180057
Contact: Kerlavage, AR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
```

```
human.
                                                                                                       299;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2002 T 2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         300 T 300
                                                                     Query Match
Best Local 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                   BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE
COMMENT
                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                     ORIGIN
                                                                                                                                          g
                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                     움
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                          ò
                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Direct Submission Submitted (30-MAY-1995) to the DDBJ/EMBL/GenBank databases. Tsutomu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Fujiwara, Otsuka GEN Research Institute,Otsuka Pharmaceutical
Co.,Ltd: 467-10 Kagasuno Kawauchi-cho, Tokushima, Tokushima 771-01,
Japan (Tel:0886-65-2888, Fax:0886-37-1035)
Submitted (30-May-1995) to DDBJ by:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 (bases 1 to 300)
Fujiwara,T., Hirano,H., Katagiri,T., Kawai,A., Kuga,Y., Nagata,M., Okuno,S., Ozaki,K., Shimada,Y., Shinomiya,H.,
Takaichi,A., Takeda, T., Watanabo,T., Takahashi,E., Hirai,Y.,
Maekawa,H., Shin,S. and Nakamura,Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EST; EST(expressed sequence tag); Human aorta; similar to none(May 29,1995).
                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens cDNA to mRNA, clone_lib:Clontech human aorta polyA+mRNA (#6572).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                         2002 AGGTAAAACAGGATGTAAAGTTTATATACAAGAATATAATGTTTATCTGAAATATTTACA 1943
                                                                                                                                                                                                                                                                              1882 TAAGCTACAATGGGTTTAAATTTGCAAAAGTTAAGTAAGAAAGTTTTTAAACAAGGCTTAA 1823
                                                                                                                                                                                                                                                                                                                                                                                                                   181 AGTACTCAAGTCAATTATAAAATTTATATCTTTNGCCTTTTACTTGAAGAAATCATGCTA 240
                                                                                                                                                                                                                                                                                                                              121 TAAGCTACAATGGGTTTAATTTGCAAAAGTTAAGTAAGANATGTTTAAACAAGGCTTAA 180
                                                                                                                                                                                                                                                          61 GTGTTGGTTAAAGCAATATTTTTACAACTTTTAAAGGNAAACTACTATGTATATTACAGG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   241 TAGAAATGGTTAATGGTTCTAATAAATGGAAGTATTGTAGCTGGAATGTGATACATGT 300
                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21-MAY-1996
                                                                                                                                                          Gaps
                                                                                                                                                                                       1 AGGTAAAACAGGAIGTAAAAGITTATACAAGAATATAATGITTATCIGAAATATTACA
                                                                                                                                                        ö
                                                                                                                     Length 300;
                                                                     4 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HUM307G04B 300 bp mRNA EST Human aorta CDNA 5'-end GEN-307G04, mRNA sequence.
                                                                                                                                                       4; Indels
                                                                                                                   Score 296; DB 4;
Pred. No. 0.00e+00;
                                                                                                                                                        0; Mismatches
              /clone_lib="Fetal heart II"
/dev_stage="fetus"
complement(<1. .>300)
28 c 51 g 104 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="Homo sapiens"/db_xref="taxon:9606"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Otsuka GEN Research Institute
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Otsuka Pharmaceutical Co.,Ltd
463-10 kagasuno Kawauchi-cho
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                 Query Match 14.6%;
Best Local Similarity 98.7%;
Matches 296; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Tokushima, Tokushima
771-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Unpublished(303)
Unpublished (1995)
2 (bases 1 to 300)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Phone: 0886-65-2888
Fax : 0886-37-1035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Tsutomu Fujiwara
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Fujiwara, T.
                                                                 113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           966397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Japan
Phone:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                 mRNA
BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMMENT
                                                                                   ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOURCE
                                                                                                                                                                                       g
                                                                                                                                                                                                                         ე
                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                          d
                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                            ద
                                                                                                                                                                                                                                                                                                                                                                                                                                Сp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
```

```
1 Joases 1 to 302)
Sadams, M.D., Kerlavage, A.R., Fleischmann, R.D., Fuldner, R.A.,
Bult, C.J., Lee, N.H., Kirkness, E.F., Wehnstock, G., Gocayne, J.D.,
White, O., Sutton, G., Blake, J.A., Brandon, R.C., Man-Wal, C.,
Clayton, R.A., Cline, T.R., Cotton, M.D., Earle-Hughes, J., Fine, L.D.,
Fitzgerald, L.M., Fitzhuan, J.L., Geophagen, N.S.,
Glodek, A., Gnehm, C.L., Hanna, M.C., Hanble, P.S., J.K.,
Kelley, J.M., Kelley, J.C., Liu, L.-I., Marmaros, S.M., Merrick, J.M.,
Moreno-Palanques, R.F., McDonald, L.A., Nguyen, D.T., Pelligrino, S.M.,
Phillips, C.A., Ryder, S.E., Scott, J.L., Saudek, D.M., Shirley, R.,
Small, K.V., Spriggs, T.A., Utterback, T.R., Weidman, J.F., Li, L.,
Bednark, D.D., Cao, L., Cepeda, M.A., Coleman, T.A., Collins, E.J.,
Dimke, D., Fenris, A., Colleman, T.A., Collins, E.J.,
Bew, W.W., Hu, J.S., Greene, J.M., Gruber, J., Hudson, P., Kim, A.K.,
Raymond, L., Wei, Y.F., Wing, J., Li, H., Meissner, P.S., Olsen, H.,
Fraser, C.M., and Venter, J.C.,
Fraser, J.C., J.C.,
Fraser, J.C., J.C.,
Fraser, J.C., J.C.,
Fraser, J.C., J.C.,
Fraser, J.M., J.C.,
Fraser, J.C., J.C., J.C.,
Fraser, J.C., J.C., J.C.,
Fraser, J.C., J.C., J.C.,
Fraser, J.C., J.C., J.C., J.C.,
Fraser, J.C., J.C., J.C., J.C.,
Fraser, J.C., J.C., J.C., J.C., J.C.,
Fraser, J.C., J.C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Initial assessment of human gene diversity and expression patterns based upon 83 million nucleotides of CDNA sequence Nature 377 (6547 Suppl), 3-174 (1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AA330758 302 bp mRNA EST 21-APR-1997
EST34493 Embryo, 6 week I Homo sapiens cDNA 5' end, mRNA sequence.
91983000
                                                                                                                                                                                                                                                                                        Ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1882 ACCTGTAATATACATAGTAGTTTACCTTTAAAAGTTGTAAAAATATTGCTTTAACCAACA 1941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1762 ATAGCATGATTTCTTCAAGTAAAAGGCAAAAGATATAAATTTAAATTGACTTGAGTAC 1821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1942 CIGTAAATATTTCAGATAAACATTATATATTCTTGTATAAAACTTTACATCCTGTTTTACC 2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1702 TACATGTATCACATTCCAGCTACAATACTTCCATTTATTAGAAGCACATTAACCATTTCT 1761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61 ATAGCATGATTTCTTCAAGTAAAAGGCAAAAGATATAAATTTTATAATTGACTTGAGTAC 120
/clone_lib="clontech human aorta polyA+ mRNA (#6572)"
51 c 28 g 113 t 1 others
                                                                                                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                          1 TACAWGTATCACATTCCAGCTACAATACTTCCATTTATTAGAAGCACATTAACCATTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121 TITAAGCCTIGITTAAAACAITICTIACTIAACTITIIGCAAATIAAACCCATIGIAGCTI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181 ACCTGTAATATACATAGTAGTTTACCTT-AAAAGTTGTAAAAATATTGCTTTAACCAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    240 CTGTAAATATTTCAGATAAACATTATATTCTTGTATAAAACTTTACATCCTGTTTTACC
                                                                                                                                                                                                                                                                                        ij
                                                                                                                                                                                            Length 300;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9712 Medical Center Drive, Rockville, MD 20850 USA Tel: 3018699056
Fax: 3018699423
                                                                                                                                                                                                                                                                                   0; Indels
                                                                                                                                                                                       Score 294; DB 6; 1
Pred. No. 0.00e+00;
                                                                                                                                                                                                                                                                                   1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The Institute for Genomic Research
                                                     გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Other_ESTs: THC180057
Contact: Kerlavage, AR
                                                                                                                                                                                  14.5%;
llarity 99.3%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bioinformatics
                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens
                                                ๗
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             96026280
                                           107
```

```
mRNA (#6572).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Fujiwara, T.
                                                                                                                                                                                                                                                     Q
                                                                                                                                 Phone: (Fax : (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9965874
                                                                                                                   Japan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo.
                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   47
                                                                                                                                                                                                                                                   BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOURCE
                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Direct Submission
Submitted (30-MAY-1995) to the DDBJ/EMBL/GenBank databases. Tsutomu
Fujiwara, Otsuka GEN Research Institute,Otsuka Pharmaceutical
Co.,Ltd; 463-10 Kagasuno Kawauchi-cho, Tokushima, Tokushima 771-01,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Tsutomu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EST: EST(expressed sequence tag); Human aorta; similar to none(May 29,1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Fujivara,T., Hizano,H., Katagiri,T., Kawai,A., Kuga,Y., Nagata,M., Okuno,S., Ozaki,K., Shimizu,F., Shimada,Y., Shinomiya,H., Takaichi,A., Takeda,S., Watanabe,T., Takahashi,E., Hirai,Y., Maekawa,H., Shin,S. and Nakamura,Y.
Unpublished(303)
(popublished(1995)
(pases 1 to 293)
For clone availability, additional sequence and expression information related to this EST, please check the TIGR Human Gene Index (http://www.tigr.org/tdb/hgi/hgi.html)
Seq primer: M13 Reverse.
                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens cDNA to mRNA, clone_lib:Clontech human aorta polyA+mRNA (#6572).
                                                                                                             /note="Organ embryo; Vector: pBluescript SK-; Site_l:
EcoR1; Site_2: XhoI"
/db_xref="ATCC (lonest):132379"
/db_xref="Axxon:9606"
/clone_lib="Embryo, 6 wks"
/dev_stage="embryo, 6 wks"
/dv_stage="embryo, 6 wks"
/ds_stage="embryo, 6 wks"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  982 TIGCAGIGCACCIGIGAGGAGAIGAACGACAICAACGCGCCCIAICIGGICAIGGGACAG 1041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TIGCAGTGCACCININAGGAGATGAACGACATCAACGNGCCCTAICTGGTCATGGGACAG 240
                                                                                                                                                                                                                                                                                                                                                                                                                   ATAACCTACATCAACCGAGATACCAAAATCATCCTGGAGACCAAGAGCAAGACNNTTTAC 120
                                                                                                                                                                                                                                                                                                                                                                                                                                    AAGCTGAACGGTGTGCCGAAAGGGACCTGAAGAAATCGGTGCTGTGGCTCAAAGACAGC 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  241 AANCAGGGTTGGGAGCTGGTGATCACCTCGGTGAAGCGGTGGCAGAAGGGGCAGAGAG 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   922 AAGCTGAACGGTGTGTCCGAAAGGGACCTGAAGAAATCGGTGCTGTGGCTCAAAGACAGC 981
                                                                                                                                                                                                                                                                                                                                                                   1 AACGACATAATGGAAACGCTTTGTAAAAATNATTTTNCACTGAAAATAAAAGTGAAGGAG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21-MAY-1996
                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
                                                                                                                                                                                                                                                                                                                    ő
                                                                                                                                                                                                                                                                                   Length 302;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HUM238C04B 293 bp mRNA EST :
Human aorta cDNA 5'-end GEN-238C04, mRNA sequence.
D62097
                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                    ,
,
                                                                                                                                                                                                                                                                                   Score 292; DB 4;
Pred. No. 0.00e+00;
                                                                                                                                                                                                                                                                                                                  0; Mismatches
                                                                                                 /organism="Homo sapiens"
                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                  ch 14.4%;
1 Similarity 97.0%;
293; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (bases 1 to 293)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Jujiwara, T
                                                                                                                                                                                                                                    ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9965873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TT 1103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TT 302
                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                   Best Local
Matches 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   46
                                                                                                                                                                                                                                BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
JOURNAL
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                 802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1102
                                                                                                                                                                                                                    mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ^{\circ}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
```

```
Submitted (30-MAY-1995) to the DDBJ/EMBL/GenBank databases. Tsutomu Fujiwara, Otsuka GEN Research Institute,Otsuka Pharmaceutical Co.,Ltd; 463-10 Kagasuno Kawauchi-cho, Tokushima, Tokushima 771-01, Japan (Tel:0886-65-2888, Fax:0886-37-1035) Submitted (30-May-1995) to DDBJ by:
Tsutomu Fujiwara
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             none(May
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (bases 1 to 293)
Fujiwara,T., Hirano,H., Katagiri,T., Kawai,A., Kuga,Y., Nagata,M., Okuno,S., Ozaki,K., Shimizu,F., Shimada,Y., Shinomiya,H., Takeda,S., Watanabe,T., Takahashi,E., Hirai,Y., Maekawa,H., Shin,S. and Nakamura,Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1710 TCACATTCCAGCTACATACTTCCATTTAGAAGCACATTAACATAACCATTTTTTTAGAAGCACATTAGAAGCATTTCATAGCATG 1769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1830 TTGTTTAAAACATTTCTTACTTAACTTTTGCAAATTAAACCCATTGTAGCTTACCTGTAA 1889
                                                                                                                                                                                                                                                                                                                                                                                                                                            /clone_lib="Clontech human aorta polyA+ mRNA (#6572)"
51 c 26 g 109 t 5 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      21-MAY-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61 ATTCTTCAGFAAAGGCAAAAGATATAAMTYYXATAATTCACTTGAGTACTTTAAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TIGITTAAAACATTICTTACTTAACTTTTGCAAATTAAACCCATTGTAGCTTACCTGTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1890 TATACATAGTAGTTTACCTTTAAAAGTTGTAAAAATATTGCTTTAAACCAACACTGTAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 TCACATTCCAGCTACAATACTTCCATTTAGAAGCACATTAACCATTTCTATAGCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1770 ATTTCTTCAAGTAAAAGGCAAAAGATATAAATTTATAATTGACTTGAGTACTTTAAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TATACATAGTAGTTTACCTTTAAAAGTTGTAAAAATATTGCTTTAACCAACACTGTAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EST; EST(expressed sequence tag); Human aorta; similar to 29,1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens cDNA to mRNA, clone_lib:Clontech human aorta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1950 ATITCAGATAAACATIATATICTIGTATATAAACTITAACATCCGTITTACCT 2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            241 ATTICAGATAAACATTATATTCTTGTATATAANCTTTACATCCTGTTTACCT 293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 293;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HUM238CO5B 293 bp mRNA EST
Human aorta cDNA 5'-end GEN-238CO5, mRNA sequence.
D62098
Japan (Tel:0886-65-2888, Fax:0886-37-1035)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 290; DB 6; Le
Pred. No. 0.00e+00;
4; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           109 t
                           Submitted (30-May-1995) to DDBJ by
                                                                                                                                                                                                                                                                                                                                                                                   /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                               Otsuka GEN Research Institute
Otsuka Pharmaceutical Co.,Ltd
463-10 kagasuno Kawauchi-cho
Tokushima, Tokushima
                                                                                                                                                                                                                                                            0886-65-2888
0886-37-1035.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           26 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 14.3%;
Best Local Similarity 98.0%;
Matches 287; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Unpublished (1995)
2 (bases 1 to 293)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Direct Submission
                                                                                                                                                                                                                                                                                                                                                             . 293
                                                         Tsutomu Fujiwara
```

```
Homo.
                                                                                                                                                                                                                                                                                                             Query Match
Best Local S:
Matches 323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 49
LOCUS
                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                               BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                               64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                 ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  double-stranded cDNA was ligated to Eco RI adaptors (Pharmacia), digested with Not I and cloned into the Not I and Eco RI sites of a modified pT7T3 vector (Pharmacia). Library went through one round of normalization to a Cot = 20. Library constructed by Bento Soares and M.Fatima Bonaldo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    H14917 344 bp mRNA EST 27-JUN-1995
yl26d03.rl Homo sapiens cDNA clone 159365 5' similar to SP:A45054
A45054 Fz-1=PUTATIVE INTERCELLULAR SIGNAL TRANSDUCER OR TRANSMITTER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryotze; Metazoa; Eumetazoa; Bilateria; Coelomata; Eukaryotze; Metazoa; Eumetazoa; Bilateria; Coelomata; Osteichthyes; Sarcopterygii; Choanata; Tetrapoda; Amniota; Mammalia; Theria; Eutheria; Archonta; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 344)
11 (last, Clark, N., Dubuque, T., Eliston, K., Hawkins, M., Hollman, M., Hultman, M., Kucaba, T., Le, M., Lennon, G., Marra, M., Parsons, J., Rifkin, L.; Rohlfing, T., Soares, M., Tan, F., Trevsskis, E., Waterston, R., Williamson, A., Wohldmann, P. and
                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1710 TCACATTCCAGCTACATACTTCCATTTAGTAGAAGCACATTAACCATTTCTATAGCATG 1769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ITGITIAAAACATITCITACTIAACTITTGCAAATIAAACCCATIGIAGCITACCIGIAA 180
                                                                                                                                                                                                                                                                                                                                                                                                            61 ATTTCTTCAAGTAAAAGGCAAAAGATATAAMTYYYATAATTCACTTGAGTACTTTAAGCC 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181 TATACATAGTTGCCTTTAAAAGTTGTAAAAATATTGCTTTAACCAACACTGTAAAT 240
                                                                                                                                                                                                               /clone_lib="Clontech human aorta polyA+ mRNA (#6572)"
51 c 26 g 109 t 5 others
                                                                                                                                                                                                                                                                                                                                             1 TCACATTCCAGCTACAATACTTCCATTTATAGAAGCACATTAACCATTTCTATAGCATG 60
                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                             1890 TATACATAGTAGTTACCTTTAAAAGTTGTAAAAATATTGCTTTAACCAACACTGTAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 293;
                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                              Score 290; DB 6; Le
Pred. No. 0.00e+00;
4; Mismatches 2;

    .293
    /organ1sm="Homo sapiens"
    /db_xref="taxon:9606"

otsuka GEN Research Institute Otsuka Pharmaceutical Co., Ltd 463-10 kagasuno Kawauchi-cho Tokushima, Tokushima
                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                               26 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The WashU-Merck EST Project
                                                                                                                                                                                                                                                                                14.3%;
98.0%;
                                                                                                                  0886-65-2888
0886-37-1035
                                                                                                                                                                                                                                                                                               Best Local Similarity 98.0%;
Matches 287; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Unpublished (1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                   ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Wilson, R.
                                                                                                                                                                                                                               102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9879737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     H14917
                                                                                                                  Phone:
                                                                                                     Japan
                                                                                                                                    Fax
                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       48
                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                               COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
SOURCE
                                                                                                                                                  FEATURES
                                                                                                                                                                                                                               BASE CC
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
```

```
Direct Submission
Submitted (30-MXY-1995) to the DDBJ/EMBL/GenBank databases. Tsutomu
Fujiwara, Otsuka GEN Research Institute,Otsuka Pharmaceutical
Co.,Ltd; 463-10 Kagasuno Kawauchi-cho, Tokushima, Tokushima 771-01,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9965907
EST; EST(expressed sequence tag); Human aorta; similar to none(May
29,1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 (bases 1 to 299)
Fujiwara,T., Hirano,H., Katagiri,T., Kawai,A., Kuga,Y., Nagata,M., Okuno,S., Ozaki,K., Shimizu,F., Shimada,Y., Shinomiya,H., Takaichi,A., Takeda,S., Watanabe,T., Takahashi,E., Hirai,Y., Maekawa,H., Shin,S. and Nakamura,Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         polyA+
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
Contact: Wilson RK
WashU-Merck EST Project
WashU-Merck EST Project
WashU-Merck EST Project
WashU-Merck EST Project
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Exa: 314 286 1810
Email: est@watson.wustl.edu
High quality sequence stops: 59
Source: IMAGE Consortium, LLNL
This clone is available royalty-free through LLNL; contact the
IMAGE Consortium (Info@lange.llnl.gov) for further information.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         376 AAGCCCATCCCGGCCAACCTGCAGCTGTGCCACGCCATCGAATACCAGAACATGCGGGCTG 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCCAACCTGCTGGGCCACGAGAACCATGAAGGAGGTGCTGGAGCAGGCCGGCGCTTGGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   244 GINAAAGGACCGCTGCGCCCCGGTCATGTCCGNCTTCGGTTTCCCCTGGGCCCGGANATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4 AAGCCCATCCCGGTCAACCTGCAGCTGTGCCACGCCATCGAATACCAGAACATGCGGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    184 CCCGTCTGCCTNGATGACCTAGACGAGACCATCCAGCCATGCCACTTGNTCTGGTNTCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens cDNA to mRNA, clone_lib:Clontech human aorta mRNA (#6572).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4
                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 344;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HUM240B02B 299 bp mRNA EST
Human aorta cDNA 5'-end GEN-240B02, mRNA sequence.
D62131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Mismatches 15; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        673 CTIGAGIGCGACCGTITCCCCCAGGA-CAACGACCTITGCA 712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               304 CTTGAGTTCGACCGTTTCCCCNAGGATCAAGGACCTTTGCA 344
                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 290; DB 20;
Pred. No. 0.00e+00;
                                                                                                                                                                                                                                                                                                                                                                      ų
                                                                                                                                                                                                                                                                                                                                                                      99
                                                                                                                                                                                                                                                                                                                       /organism-"Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                               92 9
                                                                                                                                                                                                                                                                                                                                           /clone="159365"
114 c
                                                                                                                                                                                                                                                                                                                                                                                                                                       ch 14.3%;
| Similarity 94.4%;
| 322; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Unpublished (1995)
2 (bases 1 to 299)
Fujiwara,T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
```

```
Submitted (7-Nov-1995) to DDBJ by:
                                                                                                                                                                                                                                          /organism="Homo sapiens"
                                             Tsutomu Fujiwara
Otsuka GEN Research Institute
Otsuka Pharmaceutical Co., Ltd
463-10 kagasuno Kawauchi-cho
Tokushima, Tokushima
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Tsutomu Fujiwara
Otsuka GEN Research Institute
                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                            14.1%;
ilarity 99.7%;
Conservative
                                                                                                                                                       Japan
Phone: 0886-65-2888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unpublished (1995)
2 (bases 1 to 281)
                                                                                                                                                                                        : 0886-37-1035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Direct Submission
                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       fujiwara,T.
                                                                                                                                                                                                                                                                                             Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            91180218
                                                                                                                                                                                                                                                                                           66
                                                                                                                                                                                                                                                                                                                                                                                286;
                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                           BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
                                                                                                                                                                                                          FEATURES
                                   COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMMENT
                                                                                                                                                                                                                                                                                                             ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Direct Submission
Submitted (30-MAY-1995) to the DDBJ/EMBL/GenBank databases. Tsutomu
Fujiwara, Otsuka GEN Research Institute,Otsuka Pharmaceutical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EST; EST(expressed sequence tag); Human aorta; similar to none(May 29,1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Fujivara,T., Hirano,H., Katagiri,T., Kawai,A., Kuga,Y., Nagata,M., Okuno,S., Ozaki,K., Shimzau,F., Shimada,Y., Shinomiya,H., Takeichi,A., Takeda,S., Watanabe,T., Takahashi,E., Hirai,Y., Matanabe,T., Takahashi,E., Hirai,Y., Makwa,H., Shin,S. and Nakamura,Y. Unpublished (1995)

(bases 1 to 287)
                                                                                                                                                                                                                                                                                                                                                            ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens cDNA to mRNA, clone_lib:Clontech human aorta polyA+
mRNA (#6572).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                              1702 TACATGTATCACATTCCAGCTACAATACTTCCATTTATTAGAAGCACATTAACCATTTCT 1761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1822 TITAAGCCTTGTTTAAAACATITCTTACTTAACTITTGCAAATTAAACCCATGTAGGTT 1881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1762 ATAGCATGATTTCTTCAAGTAAAAGGCAAAAGATATAAATTTTATAATTGACTTGAGTAC 1821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   239
                                                                                                                                                                                                                                                      aorta polyA+ mRNA (#6572)"
4 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                               61 ATAGCATGATTTCTTCAAGTAAAAGGCAAAAGATATAAATTTTATAATTGACTTGAGTAC 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    240 CIGTAAATATTTCAGATAAACATTATATTCTTGTATATAAACYT-ACATCCTGTTTTACC 298
                                                                                                                                                                                                                                                                                                                                                                                            TACATGTATCACATTCCAGCTACAHTACTTCCATTTATTAGAAGCACATTAACCATTTCT 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21-MAY-1996
                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181 ACCYGTAATATACATAGTAGTTTACCTTTAAAAGTTGTAAAA-TATTGCTTTAACCAMCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121 TITAAGCCTIGITTAAAACATTICITACTTAACTTITGCAAATTAAACCCATTGTAGCTT
                                                                                                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                         Length 299;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HUM289F09B 287 bp mRNA EST
Human aorta cDNA 5'-end GEN-289F09, mRNA sequence.
D62477
                                                                                                                                                                                                                                                                                                                                                           0; Indels
Japan (Tel:0886-65-2888, Fax:0886-37-1035)
Submitted (30-May-1995) to DDBJ by:
                                                                                                                                                                                                                                                                                                                       Score 287; DB 6; 1
Pred. No. 0.00e+00;
4; Mismatches 0;
                                                                                                                                                                                                                                    /db_xref="taxon:9606"
/clone_lib="Clontech human
1 51 c 28 g 112 t
                                                                                                                                                                                                       1. .299
/organism="Homo sapiens"
                             Tsutomu Fujiwara
Otsuka GEN Research Institute
Otsuka Pharmaceutical Co.,Ltd
463-10 kagasuno Kawauchi-cho
Tokushima, Tokushima
                                                                                                                                                                                     Location/Qualifiers
                                                                                                                                                                                                                                                                                                                         14.2%;
|larity 98.0%;
| Conservative
                                                                                                                                                     0886-65-2888
                                                                                                                                                                     0886-37-1035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (bases 1 to 287)
                                                                                                                                                                                                                                                                                                                                           . Similarity
295; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Fujiwara, T.
                                                                                                                                                                                                                                                                         ๙
                                                                                                                                                                                                                                                                        104
                                                                                                                                    Japan
Phone: (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2002 T 2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     299 T 299
                                                                                                                                                                                                                                                                                                                         Query Match
Best Local S
Matches 299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                        BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KEYWORDS
                                                                                                                                                                                       FEATURES
               COMMENT
                                                                                                                                                                                                                                                                                         ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOURCE
```

δ 8 ò a ò g ò g

ò 용

```
Submitted (07-NOV-1995) to the DDBJ/EMBL/GenBank databases. Tsutomu Fujiwara, Otsuka GEN Research Institute,Otsuka Pharmaceutical Co.,Ltd, 463-10 Kagasuno Kawauchi-cho, Tokushima, Tokushima 771-01,
Co.,Ltd; 463-10 Kagasuno Kawauchi-cho, Tokushima, Tokushima 771-01,
Japan (Tel:0886-65-2888, Fax:0886-37-1035)
Submitted (30-May-1995) to DDBJ by:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 l (bases 1 to 281)
Eujiwara,T., Hirano,H., Katagiri,T., Kawai,A., Kuga,Y., Nagata,M.
Eujiwara,T., Gzaki,K., Shinizu,F., Shimada,Y., Shinoniya,H.,
Takaichi,A., Takeda,S., Watanabe,T., Takahashi,E., Hirai,Y.,
Maekawa,H., Shin,S. and Nakamura,Y.
Large-scale sequencing project at Otsuka GEN Research Institute
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalla; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1636 TGAGACTCACTGTCTAAGTCTTACAACAATTCATCATTTTATACCTTCAATGGGAACTTA 1695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1696 AACTGTTACATGTATCACATTCCAGCTACAATACTTCCATTTATTAGAAGCACATTAACA 1755
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1816 GAGTACTTTAAGCCTTGTTTAAAACATTTCTTAACTTTTGCAAATTAAACCCATTG 1875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /db_xref="taxon:9606"
/db_xref=ltaxon:9606"
/clone_lib="Clontech human aorta polyA+ mRNA (#6572)"
a 50 c 33 g 105 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EST; EST(expressed sequence tag); Human aorta.
Homo sapiens aorta cDNA to mRNA, clone_lib:human aorta polyA+.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        15-DEC-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 TGAGACTCCAGTGTCTAAGTCTTACAACTACATTCATCATTTTATACCTTCAATGGGAACTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AACTGTTACATGTATCACATTCCAGCTACAATACTTCCATTTATTAGAAGCACATTAACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121 ATTTCTATAGCATGATTTCTTCAAGTAAAAGGCAAAAGATATAAATTTTATAATTGACTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181 GAGTACTITTAAGCCTTGTTTAAAACATTTCTTACTTAACTTTTGCAAATTAAACCCATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 287;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1876 TAGCTTACCTGTAATATACATAGTAGTTTACCTTTAAAAGTTGTAAA 1922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HUM343C04B 281 bp mRNA EST
Human aorta cDNA 5'-end GEN-343G04, mRNA sequence.
D79867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              241 TAGCTTACCTGTAATATACATAGTAGTTTACCTTTAAAGGTTGTAAA 287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 285; DB 6; I
Pred. No. 0.00e+00;
0; Mismatches 1;
```

```
23
                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                        BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
NID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KEYWORDS
SOURCE
                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                        ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                            硆
                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                  ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Submitted (30-MAY-1995) to the DDBJ/EMBL/GenBank databases. Tsutomu Fujivara, Otsuka GEN Research Institute,Otsuka Pharmaceutical Co./Ltd; 463-10 Kagasuno Kawauchi-cho, Tokushima, Tokushima 771-01, Japan (Tel:0886-65-2888, Fax:0886-37-1035)
Submitted (30-May-1995) to DDBJ by:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EST: EST(expressed sequence tag); Human aorta; similar to none(May $2,1995).
Homo sapiens cDNA to mRNA, clone_lib:Clontech human aorta polyA+ mRNA (#6572).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Fujiwara, T., Hirano, H., Katagiri, T., Kawai, A., Kuga, Y., Nagata, M., Okuno, S., Ozaki, K., Shimizu, F., Shimada, Y., Shinomiya, H., Takaichi, A., Takeda, S., Watanabe, T., Takahashi, E., Hirai, Y., Unpublished (1995)

Unpublished (1995)

Less 1 to 273)
                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                 240
                                                                                                                                                                                                                                                                                                                                                                                                              61 AAAAGGCAAAAGATATAAAATTTTATAATTGACTTGAGTACTTTAAGCCTTGTTTAAAACA 120
                                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              21-MAY-1996
                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                           1 TACAATACTICCAITITATAGAAGCACAITAAACCAITICIATAGCAIGAITICITCAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181 ITTACCTTTAAAAGTTGTAAAATATTGCTTTAACCAACACTGTAAATATTTCAGATAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121 TITCTIACTIAACTITIGCAAATTAAACCCATIGIAGCTIACCTGTAATATACATAGTAG
                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                     Score 279; DB 6; Length 281;
Pred. No. 0.00e+00;
1; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HUM233G01B 273 bp mRNA EST
Human aorta cDNA 5'-end GEN-233G01, mRNA sequence.
D62031
                                                                                                                                                                                                                         1 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          241 CATTATATTCTTKTATATAAACTTTACATCCTTTTTACCT 281
                                                                                                                                                 /organism="Homo saplens"
/db xref="taxon:9606"
/clone_lib="human aorta polyA+"
/tissue_type="aorta"
/ 45 c 24 g 110 t
                                                                                                                                                                                                                                                                       13.8%; Score 279;
larity 99.3%; Pred. No. 0.
Conservative 1; Mismatc
Otsuka Pharmaceutical CO., Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Otsuka GEN Research Institute
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Otsuka Pharmaceutical Co., Ltd
463-10 kagasuno Kawauchi-cho
        463-10 Kagasuno Kawauchi-cho
Tokushima, Tokushima
                                                                                Phone:0886-65-2888
Fax :0886-37-1035.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (bases 1 to 273)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Direct Submission
                                                                                                                                                                                                                                                                                        Best Local Similarity
Matches 279; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Tsutomu Fuj
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'ujiwara, T
                                                                                                                                                                                                                         ø
                                                                                                                                                                                                                      101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9965807
                                                                  Japan
                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           52
                                                                                                                                     source
                                                                                                                                                                                                                      BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
JOURNAL
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOURCE
```

g

g ò g

ò g

ò

```
Adams, M.D., Kerlavage, A.R., Fleischmann, R.D., Fuldner, R.A., Bult, C.J., Lee, N.H., Kirkness, E.F., Weinstock, K.G., Gocayne, J.D., White, O., Sutton, G., Blake, J.A., Brandon, R.C., Man-Wai, C., Clayton, R.A., Cline, T.R., Cotton, M.D., Earle-Hughes, J., Fine, L.D., Fitzgerald, L.M., Fitzhugh, W.M., Fritchman, J.L., Geoghagen, N.S., Kelley, J.M., Kelley, J.C., Liu, L.-I., Marmaros, S.M., Merrick, J.M., Kelley, J.M., Kelley, J.C., Liu, L.-I., Marmaros, S.M., Moreno-Palanques, R.F., McDonald, L.A., Nquyen, D.T., Pelligrino, S.M., Phillips, C.A., Ryder, S.E., Scott, J.L., Saudek, D.M., Shirley, R., Small, K.V., Spriggs, T.A., Utterback, T.R., Weidman, J.F., Li, Y., Bednarik, D.P., Ceo, L., Cepeda, M.A., Colleman, T.A., Collins, E.J., Dimke, D., Feng, D.-F., Ferrie, A., Fischer, C., Hastings, G.A., Kozak, D.L., Kunsch, C., Hungjun, J., Li, H., Melssner, P.S., Olsen, H., Kozak, D.L., Kunsch, C., Hungjun, J., Li, H., Melssner, P.S., Olsen, H., Erser, C.M. and Venter, J.C., The Raymond, L., Wei, Y.F., Wing, J., Xu, C., Yu, G.L., Ruben, S.M., Dillion, P.J., Fannon, M.R., Rosen, C.A., Haseltine, W.A., Fields, C., Initial assessment of human gene diversity and expression patterns based upon 83 million nucleotides of CDNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AA371169 276 bp mRNA EST 21-APR-1997
22183193 Prostate gland I Homo sapiens cDNA 5' end, mRNA sequence.
AA371169
92023731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1709 ATCACATICCAGCTACAATACTICCATITATIAGAAGCACATTAACCATITCIAIAGCAT 1768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1769 GATTTCTTCAAGTAAAAGGCAAAAAGATATAAATTTTATAATTGACTTGAGTACTTTAAAGC 1828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1889 ATATACATAGTAGTTTACCTTTAAAAGTTGTAAAAAATATTGCTTTAACCAACACTGTAAA 1948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           180
                                                                                                                                                                                                                                  /organism="Homo saplens"
/db_xref="taxon:9606"
/clone_lib="Clontech human aorta polyA+ mRNA (#6572)"
a 43 c 25 g 99 t 6 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1829 CTIGITIAAAAACATITCTIACTIACTIACTITIGCAAATIAAACCCATIGIAGCTIACCIGIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121 CTTGTTTAAAACATTTCTTACTTAACTTTTGCAAATTAAACCCATTGTAGCTTACCTGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 ATCACATTCCAGCTACAATACTTCCATTTATTAGAAGCACATTAACCATTTCTATAGCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61 GATTICTICAAGTAAAAGGCAAAAGATATAAATYYBATAATTVMMTTGAGTACTTTAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181 ATATACATAGTAGTITTACCTITAAAAGTIGTAAAAATAITGCTTTAACCAACACGTAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 273;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 273; DB 6; Length 273
Pred. No. 0.00e+00;
6; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           241 TATTICAGATAAACATTATATICTIGIATATAA 273
                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Other_ESTs: THC180057
Contact: Kerlavage, AR
rokushima, Tokushima
771-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 13.5%;
Best Local Similarity 97.8%;
Matches 267; Conservative
                                                                                                   3: 0886-65-2888
3: 0886-37-1035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (bases 1 to 276)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens
                                                                                                          Phone:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                human.
                                                                      Japan
                                                                                                                                          Fax
```

Fri Nov

```
1 (sites)
Fujiwara,T., Hirano,H., Hishigaki,H., Horie,M., Kawai,A., Kuga,Y.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 282;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 273; DB 4; Length 202
Pred. No. 0.00e+00;
....ma+rhes 7; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C16543 283 bp mRNA EST
Human aorta cDNA 5'-end GEN-347D02, mRNA seguence.
C16543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g1571250
EST; EST(expressed sequence tag); Human aorta.
Homo sapiens aorta cDNA to mRNA, clone:347D02.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1436 GCTAGTTTTGAATAGGTGCAACTGTGACTTGGGTTGG 1477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  241 GCTAGTTTTGANTAGGTGCAACTNTGACTTGGGTCTGGTTGG 282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ų
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /dev_stage="fetus, 24 wks"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      82
                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      26
                                                                                                                                                                                         Other_ESTs: THC180057
Contact: Kerlavage, AR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /sex="female"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 13.5%;
Best Local Similarity 97.5%;
Matches 275; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .>282
70 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                                                                                     96026280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mRNA
BASE COUNT
                                                                                                                                                JOURNAL
                                                                                                                                                                     MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
                                                                                                        TITLE
                                                                                                                                                                                           COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             БÞ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Adams, M.D., Kerlavage, A.R., Fleischmann, R.D., Fuldner, R.A.,
Bult, C.J., Lee, N.H., Kirkness, E.F., Weinstock, K.G., Gocayne, J.D.,
White, O., Sutton, G., Blake, J.A., Brandon, R.C., Man-Wal, C.,
Clayton, R.A., Cline, T.R., Cotton, M.D., Earle-Hughes, J., Fine, L.D.,
Fitzgerald, L.M., Fitzhugh, W.M., Fritchman, J.L., Geoghagen, N.S.,
Glodek, A., Gnehm, C.L., Hanna, M.C., Hedblom, E., Hinkle, P.S., Jr.,
Kelley, J.M., Kelley, J.C., Liu, L.-I., Marmaros, S.M., Merrick, J.M.,
Noreno-Palanques, R.F., MoDonald, L.A., Nauyen, D.T., Pelligrino, S.M.,
Philips, C.A., Ryder, S.E., Scott, J.L., Saudek, D.M., Shirley, R.,
Small, K.V., Spriggs, T.A., Utterback, T.R., Weidman, J.F., Li, Y.,
Bednarik, D.P., Cao, L., Cepeda, M.A., Coleman, T.A., Collins, E.J.,
Dimke, D., Feng, D.-F., Ferrie, A., Fischer, C., Hastings, G.A.,
                                                                                               Email: arkerlav@tigr.org
For clone availability, additional sequence and expression
information related to this EST, please check the TIGR Human Gene
Index (http://www.tigr.org/tdb/hgi.html)
Seq primer: M13 Reverse.
                                                                                                                                                                                                                                              /organism="Homo sapiens"
/note="Organ: prostate; Vector: pBluescript SK-; Site_1:
EGORI; Site_2: ANDI"
/db_xref="Argc( inhost):175811"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens
Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1240 GCTGCTCCAGTCTCAGCCTGGGCAGCTTCCCCCTGCCTTTTGCACGTTTGCATCCCCCAGC 1299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AA339113 282 bp mRNA EST 21-APR-1997 EST41485 Fetal brain I Homo sapiens cDNA 5' end, mRNA sequence. AA339113 91991371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121 GAGCACGGCTGACCATTTCTGCTCCGGGATCTCCAGCTCCCGTTCCCCAAGCACACTCCTA 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61 AGCATCCGCAAGCTGCAGTGCTAGTCCCGGCATCCTTATGGCTCCGACAGGCCTGCTCCA 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181 GCTGCTCCAGTCTCAGCCTGGGCAGCTTCCCCCTGCCTTTTGCACGTTTGCATCCCCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
Bioinformatics
The Institute for Genomic Research
7712 Medical Center Drive, Rockville, MD 20850 USA
7el: 3018699056
Fax: 3018699423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 276;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 274; DB 5;
Pred. No. 0.00e+00;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1300 ATTTCCTGAGTTATAAGGCCACAGGAGTGGATAGCT 1335
                                                                                                                                                                                                                                                                                                                                                      /clone_lib="Prostate gland I"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  241 ATTICCIGAGITATAAGGCCACAGGAGIGGAIAGCI 276
                                                                                                                                                                                                                                                                                                                                                                                                                                         ų
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                            /dev_stage="adult, 21 yrs"
                                                                                                                                                                                                                                                                                                                                                                                                                                       09
                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                       72 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  13.5%;
99.6%;
                                                                                                                                                                                                                                                                                                                                                                         /sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (bases 1 to 282)
                                                                                                                                                                                                                                                                                                                                                                                                                  <1. .>276
92 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           275; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                     52 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  numan.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LOCUS
DEFINITION
ACCESSION
                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                  mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
```

ORIGIN

g

셤

ò

g

ò

g

ò

RESULT

```
He,W.W., Hu,J.S., Greene,J.M., Gruber,J., Hudson,P., Kim,A.K.,
Kozak,D.L., Kunsch,C., Hungjun,J., Li,H., Melssner,P.S., Olsen,H.,
Raymond,L., Wei,Y.F., Wing,J., Xu,C., Yu,G.L., Ruben,S.M.,
Dillion,P.J., Fannon,M.R., Rosen,C.A., Haseltine,W.A., Fields,C.,
Fraser,C.M. and Venter,J.C.
                                                                                                                                                               Initial assessment of human gene diversity and expression patterns based upon 83 million nucleotides of CDNA sequence Nature 377 (6547 Suppl), 3-174 (1995)
                                                                                                                                                                                                                                                                                                                                                                 Bioinformatics
The Institute for Genomic Research
Tyl Medical Center Drive, Rockville, MD 20850 USA
Tel: 3018699423
Email: arkerlav@tigr.org
Email: arkerlav@tigr.org
information related to this EST, please check the TIGR Human Gene Index (http://www.tigr.org/tdb/hgi.html)
Seq primer: M13 Reverse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1196 TTCTGCTCCGGGATCTCAGCTCCCGTTCCCCAAGCACACACTCCTAGCTGCTCCCAGTCTCAG 1255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1256 CCTGGGCAGCTTCCCCCTGCCTTTTGCACGTTTGCAGCATTTCCTGAGCTTATAA 1315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /organism="Homo sapiens"
/note="Organ: brain: Vector: pBluescript SK-; Site_1:
BCORI: Site_2: Mon!
/db_xref="MyCC (inhost):140742"
/db_xref="taxon:9606"
/clone_lib="Fetal brain I"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121 GGCCACAGGAGINGNTAGCIGITITCACCTAAAGGAAAAGCCCACCCGAATCTIGIAGNA 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181 ATATTCAAACTAATAAAATCATGAATATTTTATGAAGGTTAAAAATAGCTCACTTTAAA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 CCTGGGCAGCTTCCCCCTGCCTTTTGCACGTTTGCATCCCCAGCATTTCCTGAGTTATAA 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 TTCTGCTCCGGGATCTCAGCTCCCGTTCCCCAAGCACAGTCCTAGCTGCTCCAGTCTCAG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  04-SEP-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
```

```
Direct Submission
Submitted (OT-NOV-1995) to the DDBJ/EMBL/GenBank databases. Tsutomu
Fujiwara, Otsuka GEN Research Institute,Otsuka Pharmaceutical
Co.,Ltd, 463-10 Kagasuno Kawauchi-cho, Tokushima, Tokushima 771-01,
                                                                                                                  Lincons 1 to 263)

Fujiwara, T., Hirano, H., Katagiri, T., Kawai, A., Kuga, Y., Nagata, M., Ckuno, S., Ozaki, K., Shinnura, F., Shinnura, H.,
Takaichi, A., Takada, S., Watanabe, T., Takahashi, E., Hirai, Y.,
Maekawa, H., Shin, S. and Nakamura, Y.
Large-scale sequencing project at Otsuka GEN Research Institute Unpublished (1995)

2 (bases 1 to 263)

Fujiwara, T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     91179948
EST; EST(expressed sequence tag); Human aorta.
EST; Saplens aorta cDNA to mRNA, clone_lib:human aorta polyA+.
Homo saplens
Homo saplens
Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalla; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2001 GGTAAAACAGGATGTAAAAGTTTATATATACAAGAATATAAATGTTTATCTGAAATATTACAG 1942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1881 AAGCTACAATGGGTTTAATTTGCAAAAGTTAAGTAAGAAATGTTTTAAACAAGGCTTAAA 1822
        for further information.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121 AAGCTACAATGGGTTTAATTTGCAAAAGTTAAGTAAGAAATGTTTTAAACAAGGCTTAAA 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 GGTAAAACAGGATGTAAAGTTTATATACAAGAATATAATGTTTATCTGAAATATTTACAG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   14-DEC-1995
                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                   Length 262;
                                                                                                                                                                                                                                                                                                                                                                                                               Score 256; DB 25; Length 262
Pred. No. 0.00e+00;
0; Mismatches 5; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HUM286A04B 263 bp mRNA EST
Human aorta cDNA 5'-end GEN-286A04, mRNA sequence.
D79597
  IMAGE Consortium (info@image.llnl.gov)
Seg primer: -40M13 fwd. from Amersham
High quality sequence stop: 161.
Location/Qualifiers
1. .262
/organism="Homo saplens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Submitted (7-Nov-1995) to DDBJ by:
Tsutomu Fujiwara
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                241 AGAAATGGNTAATGTNCCTCTA 262
                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 12.6%;
Best Local Similarity 98.1%;
Matches 257; Conservative
                                                                                                                                                                                                                                                                                                                                                          100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Japan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HOMO.
                                                                                                                                                                                                                                                                                                                          mRNA
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NID
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ე
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a
a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                        C bases 1 to 183)

Fujiwara,T.

Direct Submission

Submitted (13-MAY-1996) to the DDBJ/EMBL/GenBank databases. Tsutomu
Fujiwara, Otsuka GEN Research Institute,Otsuka Pharmaceutical
Co.,Ltd: 463-10 Kagasuno Kawauchi-cho, Tokushima, Tokushima 771-01,
Japan (Tel:+81-886-65-2888, Fax:+81-886-37-1035)
    Shimizu, F., Shimada, Y.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AA176165 262 bp mRNA EST 30-DEC-1996 zp23112.s1 Stratagene neuroepithelium (#937231) Homo sapiens cDNA clone 610343 3', mRNA sequence.
AA176165 g1757287
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ?
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1722 TACAATACTTCCATTTATTAGAAGCACATTAACCATTTCTATAGCATGATTTCTTCAAGT 1781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        l: est@watson.wustl.edu clone is available royalty-free through LLNL ; contact the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1842 TITCITACTIAACTITIGCAAATTAAACCCATIGTAGCTIACCTGTAATATACATAGGTAG 1901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITCTIACTIAACTITIGCAAATIAAACCCATIGIAGCITACCTGTAATATACATAGTAG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryotze: mitochondrial eukaryotes; Metazoa; Chordata; Vertebrata; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases I to 262)
Hillier, L., Clark, N., Dubuque, T., Elliston, K., Hawkins, M., Holman, M., Hultman, M., Kucaba, T., Le, M., Lennon, G., Marra, M. Parsons, J., Rifkin, L., Rohlfing, T., Tan, F., Trevaskis, E., Wasterston, K., Williamson, A., Wohldmann, P. and Wilson, R. Unpublished (1995)
Kyushiki,H., Nagata,M., Okuno,S., Ozaki,K., Shimizu,F., Shir
Shinomiya,H., Suzuki,M., Takaichi,A., Takeda,S., Watanabe,T.
Mackwa,H., Nakamura,Y. and Takahashi,E.
Otsuka cDNA project
Unpublished (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 TACAATACTICCATITATIAGAAGCACATIAACCATITCTATAGCATGATITCTTCAAGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             63108
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ;
;
                                                                                                                                                                                                                                                                                                                                                                                                               Length 283;
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Contact: Wilson RK
WashU-Merck EST Project
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis,
Tel: 314 286 1800
Fax: 314 286 1810
Email: est@watson.wustl.edu
This clone is available royalty-free through LL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1961 ACATTATATTCTTGTATATAAAACTTT-ACATCCTGTTTTACCT 2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            241 ACATTATATICTIGTATATAAACTTTTACATCCTGTTTACCT 283
                                                                                                                                                                                                                                                                                                                                                                                             Score 269; DB 6; Len
Pred. No. 0.00e+00;
                                                                                                                                                                                                                                                                                                                                                      110
                                                                                                                                                                                                                                                                        /organism="Homo sapiens"
/db_xref="taxon:9606"
/clone="347D02"
                                                                                                                                                                                                                                                                                                                                  /tissue_type="aorta"
46 c 26 g
                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity 99.3%;
Matches 281; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens
                                                                                                                                                                                                                                                                                                                                                          Ø
                                                                                                                                                                                                                                                                                                                                                      101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  numan.
                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                    BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                        TITLE
JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
JOURNAL
COMMENT
                                                                                                                                   TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                     FEATURES
```

음 ò g ò 셤 ò g ò g ò

ö

Gaps

US-08-848-439-1.rst

```
Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                       COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                                                                                                                                                      ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
                                                                                                                                                                                                                                                                                                                                                                    BASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  쉄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                        ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This clone is available royalty-free through LLNL; contact the IMAGE Consortium (info@image.llnl.gov) for further information. Insert Length: 1171 Std Error: 0.00
                                                                                                                                                                                                                                                                                                                                                                                                              1862 AATTAAACCCATTGTAGCTTACCTGTAATATACATAGTAGTTTACCTTTAAAAG-TTGTA 1920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181 AATTAAACCCATTGTAGCTTACCYGTAATATACATAGTAGTTTACCTTTAAAAGGTTGTA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121 YITATAAITSACTIGAGTACTITAAGCCTIGITIAAAACAITICTIACTTAACTITIGCA 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      анив2155 287 bp mRNA EST 01-FEB-1997 2688f06.r1 Soares fetal heart NbHH19W Homo sapiens cDNA clone 366083 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                    1 TCAATGGGAACTTAAACTGTTACATGTATCACATTCCAGCTACAATACTTCCATTTATTA 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryotze; mitochondrial eukaryotes; Metazoa; Chordata; Vertebrata; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases I to 287) Hallier, L., Clark, N., Dubuque, T., Elliston, K., Hawkins, M., Holman, M., Kucaba, T., Le, M., Lennon, G., Marra, M., Parsons, J., Rifkin, L., Rohlfing, T., Tan, F., Trevaskis, E., Waterston, K., Williamson, A., Wohldmann, P. and Wilson, R. Unpublished (1995)
                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    63108
                                                                                                                                                                                                                                                                                        Length 263;
                                                                                                                                                                                                                                            3 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Contact: Wilson RK
WashU-Merck EST Project
Washington University School of Medicine
H444 Forest Park Parkway, Box 8501, St. Louis, MO
Tel: 314 286 1810
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                        0; Indels
                                                                                                                                                                           /organism="Homo sapiens"
/db_xref="texon:9606"
/clone_lib="human aorta polyA+"
/tissue_type="aorta"
                                                                                                                                                                                                                                                                                      Score 256; DB 6; Pred. No. 0.00e+00; 3; Mismatches 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Seq primer: -28M13 rev2 from Amersham
High quality sequence stop: 262.
                                                                                                                                                                                                                                          93 t
ocsuka GEN Research Institute
Otsuka Pharmaceutical CO. Ltd
463-10 Kagasuno Kawauchi-cho
Tokushima, Tokushima
                                                                                                                                              Location/Qualifiers
                                                                                                                                                                                                                                            28 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Email: est@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1921 AAAATATTGCTTTAACCAACACT 1943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       241 AAAATATTGCTTTAACCAACACT 263
                                                                                                                                                                                                                                                                                      12.6%;
ilarity 98.5%;
Conservative
                                                                                                              Phone: 0886-65-2888
Fax : 0886-37-1035
                                                                                                                                                                                                                                              45 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
                                                                                                                                                                                                                                                                                                     Local Similarity
les 259; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               91624408
                                                                                                                                                                                                                                          94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               human.
                                                                                                  Japan
                                                                                                                                                                                                                                                                                      Query Match
Best Local S:
Matches 259
                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                          COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                                                                          BASE
```

유 ò g g

ŏ

ò

g

ద ò

ò

```
735008.7 394 bp mRNA EST 18-MAR-1997 va52908.r1 Soares mouse 3NME12 5 Mus musculus cDNA clone 735038 5', Ag260087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 (bases 1 to 394)
Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T.,
Geisch,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M.,
Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B.,
Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ώ
,
                                                                                                                                                                                                                        normalization to a Cot = 5. Library constructed by M.Fatima Bonaldo. This library was constructed from the same fetus as the fetal lung library, Soares fetal lung NDHEL9W."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1147 CGGCATCCTGATGGCTCCGACAGGCCTGCTCCAGAGCACGGCTGACCATTTCTGCTCCGG 1206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Eutherla; Rodentia; Sciurognathi; Muridae; Murinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGGGGCAGAGAGAGTTCAAGCGCATCTNCCGGNNGNATCCGCAAGCTGCAGTGCTAGTCC 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGGTCATGGGACAGAAACAGGGTGGGGAGCTGGTGATCACCTCGGTGAAGCGGTGGCAGA 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 GGCTCAAAGACAGCTTGCAGTGCACCTGTGAGGAGATGAACGACATCAACGCGCCCTATC 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181 CGGCATCCTGATGGCTCCGACAG-CCTGCTCCAGAGCACGGCTGACCATTCTGCTCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 255; DB 25; Length 287; Pred. No. 0.00e+00;
                                                                                                                                                                                                                                                                                                                                                                            /sex="unknown"
/dev_stage="19 weeks"
/lab_host="DH10B (ampicillin resistant)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4; Indels
                                                                                                                                                                                                                                                                                                                                     /clone="366083"
/clone_lib="Soares fetal heart NDHH19W"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1207 GATCTCAGCTCCCCTTCCCCAAGCACACTCCTAGCTGCTC 1246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GATCTCAGCTCCCGTTCCC-AAGCACACTCCTAGCTGCTC 278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ų
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Contact: Marra M/Mouse EST Project
WashU-HHMI Mouse EST Project
                                           sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Waterston, R.
The WashU-HHMI Mouse EST Project
                                                                                                                                                                                                                                                                                                                    /db_xref-"taxon:9606"
Cocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12.6%;
larity 97.5%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                              <1. .>287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Unpublished (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Local Similarity
Matches 273; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       91896590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  62
```

```
source
                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
ORIGIN
                                                                                           AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   69
                                              TITLE
JOURNAL
                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                        COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                EST: EST(expressed sequence tag); Human aorta; similar to none(May 29,1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 (bases 1 to 266)
Fujlwara,T., Hirano,H., Katagiri,T., Kawai,A., Kuga,Y., Nagata,M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens cDNA to mRNA, clone_lib:Clontech human aorta polyA+mRNA (#6572).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                         Email: mouseest@watson.wustl.edu
This clone is available royalty.free through LLNL ; contact the
IMAGE Consortium (info@image.llnl.gov) for further information.
MGI:452086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1036 GGACAGAAACAGGGTGGGGAGCTGGTGATCACCTCGGTGAAGGGGCAGAAGGGGCCAG 1095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              856 AAGGAGATAACCTACATCAACCGAGATACCAAAATCATCCTGGAGACCAAGAGCAAGACC 915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61 ATTTACAAGCTGAACGCCGTGTCCGAAAGGGACCTGAAGAAATCCGTGCTGTGGCTCAAA 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             916 ATTTACAAGCTGAACGGTGTGTCCGAAAGGGACCTGAAGAATCGGTGCTGTGGCTCAAA 975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 AAGGAGATAACGTACATCAACAGAGACACCCAAGATCATCCTGGAGAGAAAAGAGCAAGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121 GACAGCCTGCAGTGCACCTGTGAGGAGGATGAACGACATCAACGCTCCGTATCTGGTCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181 GGACAGAAGCAGGGGGGGGGGGGGGGGGAGCGTGGAAACGGTGGCAGAAGGGCCAG
           4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1096 AGAGAGTICAAGCGCATCTCCCGCAGCATCCGCAAGCTGCAGTGCTAGT 1144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 394;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    241 AGAGAGTTCAAGCGCATCTCCCGCAGCATCCGCAAGCTGCAATGCTAGT 289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0; Mismatches 17; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HUM224H07B 266 bp mRNA EST
Human aorta cDNA 5'-end GEN-224H07, mRNA sequence.
D61938
                                                                                                                                                                                                                                                                                                                                                                                        /clone_lib="Soares mouse 3NME12 5"
/sex="unknown"
/dev_stage="12.5dpc total fetus"
/lab_host="DH108"
Washington University School of MedicineP
                                                                                                                        Seg primer: -28ml3 rev2 ET from Amersham
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 255; DB 26;
Pred. No. 0.00e+00;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9/
                                                                                                                                                                     /organism="Mus musculus"
                                                                                                                                   Location/Qualifiers
1. .394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          б
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12.6%;
ilarity 94.1%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                          <1. .>394
96 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9965714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  272:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                mRNA
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
```

```
Direct Submission Submitted (30-MAY-1995) to the DDBJ/EMBL/GenBank databases. Tsutomu Submitted (30-MAY-1995) to the DDBJ/EMBL/GenBank databases. Tsutomu Fujiwara, Otsuka GEN Research Institute,Otsuka Pharmaceutical Co.,Ltd; 463-10 Ragasuno Rawauchi-cho, Tokushima, Tokushima 771-01, Japan (Tel:0886-65-2888, Fax:0886-37-1035) Submitted (30-May-1995) to DDBJ by:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1744 AGCACATTAACCATTTCTATAGCATGATTTCTTCAAGTAAAAGGCAAAAGATATAAATT 1803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /organism="Homo sapiens"
/db_xxef='taxon:9606"
/clone_lib="Clontech human aorta polyA+ mRNA (#6572)"
45 c 26 g 98 t 5 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9 AGCACATTAACCATTTCTATAGCATGATTTCTTCAAGTAAAAGGCAAAAGATATAAATYT 68
Okuno, S., Ozaki, K., Shimizu, F., Shimada, Y., Shinomiya, H., Takaichi, A., Takeda, S., Watanabe, T., Takahashi, E., Hirai, Y., Maekwa, H., Shin, S. and Nakamura, Y. Unpublished (1993) Unpublished (1995) 2 (bases 1 to 266)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   189 ATATTGCTTTAACCAACACTGTAAATATTTCAGATAAACATTATATTCTTGTATAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 266;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 254; DB 6; Length 266
Pred. No. 0.00e+00;
4; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Search completed: Thu Nov 5 12:14:26 1998
                                                                                                                                                                                                                                                                                                                                      Otsuka GEN Research Institute Otsuka Pharmaceutical Co.,Ltd 463-10 kagasuno Kawauchi-cho Tokushima, Tokushima
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualiflers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1. .266
/organism="Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 12.5%;
Best Local Similarity 98.4%;
Matches 250; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Japan
Phone: 0886-65-2888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     : 0886-37-1035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1984 TTTACATCCTGTTT 1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  249 ITIMCAWCCYGTTT 262
                                                                                                                                              Fujiwara, T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ಥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Job time : 4598 secs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
```

translate, seq

Dec 9 06:58

```
thus contains ambiguous bases which may translate into amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; Note: the original peptide US-08-848-439-2 contained at least one of ; the residues Arg, Ile, Leu, or Ser. The nucleic acid sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             YYTNGTNATGGGNCARAARCARGGNGGNGARYTNGTNATNACNWSNGTNAARMGNTGGCARAARGGNCAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GARTGYGYMGNTTYCCNCARGAYAAYGAYYTNTGYATNCCNYTNGCNMSNMSNGAYCAYTNTNTNCCNG
CNACNGARGARGCNCCNAARGTNTGYGARGCNTGYAARAAYAARAAYGAYGAYGAYGAYGAYGAYTNATGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RACNYTNTGYAARAAYGAYTTYGCNYTNAARATNAARGTNAARGARATNACNTAYATNAAYMGNGAYACN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   aaratnatnytngaracnaarwsnaaracnatntayaarytnaayggugtnwsngarmgngayytnaara
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ARWSNGTNYTNTGGYTNAARGAYWSNYTNCARTGYACNTGYGARGARATGAAYGAYATNAAYGCNCCNTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A T GYTNCARGGNCCNGGNWSNYTNYTNYTNYTNTTYYTNGCNWSNCAYT GYT GYT TYT GONWSNGCNMGNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCARYTNTGYCAYGGNATNGARTAYCARAAYATGMGNYTNCCNAAYYTNYTNGGNCAYGARACNATGAAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GARGTNYTNGARCARGCNGGNGCNTGGATNCCNYTNGTNATGAARCARTGYCAYCCNGAYACNAARAAR!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYYTNTGY#SNYTNTTYGCNCCNGTNTGYYTNGAYGAYYTNGAYGARACNATNCARCCNTGYCAY#SNY7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NTGYGTNCARGTNAARGAYMGNTGYGCNCCNGTNATGWSNGCNTTYGGNTTYCCNTGGCCNGAYATGYTN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GNYTNITYYTNITYGGNCARCCNGAYTIYWSNTAYAARMGNWSNAAYTGYAARCCNATNCCNGCNAAYY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE OF INVENTION: HUMAN SDF-5 PROTEIN AND COMPOSITIONS
                                                                                                                                             TITLE OF INVENTION: HUMAN SDE-5 PROTEIN AND COMPOSITIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOFTWARE: PatentIn Release #1.0, Version #1.25 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Reverse Translation from the peptide US-08-848-439-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MGNGARTTYAARMGNATNWSNMGNWSNATNMGNAARYTNCARTGY1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           other than the original amino acids.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ADDRESSEE: GENETICS INSTITUTE, INC. STREET: 87 CAMBRIDGEPARK DRIVE
                                                                                                                                                                                                                                                      ADDRESSEE: GENETICS INSTITUTE, INC. STREET: 87 CAMBRIDGEPARK DRIVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: US/08/848,439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
Sequence 2, Application US/08848439 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; Sequence 3, Application US/08848439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTORNEY/AGENT INFORMATION:
NAME: LAZAR, STEVEN R.
REGISTRATION NUMBER: 32,618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELECOMMUNICATION INFORMATION:
                                                                   APPLICANT: LAVALLIE, EDWARD APPLICANT: RACIE, LISA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: LAVALLIE, EDWARD APPLICANT: RACIE, LISA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEPHONE: (617) 498-8260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEFAX: (617) 876-5851
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH: 295 amino acids
                                                                                                                                                                                  NUMBER OF SEQUENCES: 3
                                                                                                                                                                                                                        CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQUENCES: 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CITY: CAMBRIDGE
                                                                                                                                                                                                                                                                                                                                CITY: CAMBRIDGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                      ZIP: 02140
                                                                                                                                                                                                                                                                                                                                                                         £
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    848439-2-trans
                                                                                                                                                                                                                                                                                                                                                                  STATE:
```

Reverse Translation from the peptide US-08-848-439-3. SOFTWARE: Patentin Release #1.0, Version #1.25 APPLICATION NUMBER: US/08/848,439 OPERATING SYSTEM: PC-DOS/MS-DOS ATTORNEY/ACENT INFORMATION:
NAME: LAZAR, STEVEN R.
RECISTRATION·NUMBER: 32,618 COMPUTER: IBM PC compatible TELECOMMUNICATION INFORMATION INFORMATION FOR SEQ ID NO: 3: SEQUENCE CHARACTERISTICS: TELEPHONE: (617) 498-8260 MEDIUM TYPE: Floppy disk LENGTH: 275 amino acids (617) 876-5851 CURRENT APPLICATION DATA: STRANDEDNESS: single MOLECULE TYPE: protein COMPUTER READABLE FORM: CLASSIFICATION: 435 TYPE: amino acid linear FILING DATE: 02140 TOPOLOGY: TELEFAX: COUNTRY:

848439-2-trans.mg

Dec 9 09:10

****	(TM)

Release 2.1D John F. Collins, Biocomputing Research Unit. Copyright (c) 1993, 1994, 1995 University of Edinburgh, U.K. Distribution rights by IntelliGenetics, Inc.

n.a. - n.a. database search, using Smith-Waterman algorithm MPsrch_nn Tue Dec 9 09:05:57 1997; MasPar time 98.26 Seconds 940.036 Million cell updates/sec Run on:

Tabular output not generated.

(1-885) from translate.seq >848439-2-trans Perfect Score: Description:

1 ATGYTNCARGGNCCNGGNAS......SNATNMGNAARYTNCARTGY 885
TACRANGTYCCNGGNCCNSW......NITANKCNTTYRANGTYACR N.A. Sequence: Comp:

Scoring table:

TABLE default Gap 6

Dbase 0; Query 0 STD: Nmatch

142080 seqs, 52183452 bases x 2 Searched:

Post-processing: Minimum Match 0% Listing first 45 summaries

Database:

1.part1 2:part2 3:part3 4:part4 5:part5 6:part6 7:part7 8:part8 9:part9 10:part10 11:part11 12:part12 13:part13 14:part14 15:part15 16:part16 17:part17 18:part18 19:part19 20:part20 21:part21 22:part22 23:part23 24:part24 25:part25 26:part26 27:part27 28:part28 29:part29

Mean 11.471; Variance 13.768; scale 0.833 Statistics: Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Pred. No.	2.49e-29 2.17e-22 2.05e-05 2.05e-05 2.05e-05 4.03e-05
Description	Human Natriuretic Pep 2.49e-29 Human Natriuretic Pep 2.17e-22 Sequence encoding new 2.05e-05 Sequence encoding new 2.05e-05 HCV envelope region n 2.05e-05 Sequence encoding new 4.03e-05
a	10572 10572 50030 50027 35072 50033
B	22440
Query core Match Length DB II	1047 1047 501 501 565 565
Query Match	17.4 14.6 7.2 7.2 7.2
Score	128 107 53 53 53 53
ult No.	126459
Result No.	(O) 40

7.88e-05 7.88e-05	7.88e-05	1.54e - 04	1.54e - 04	1.54e - 04	. 99e-	99e-	œ.	٠.	•	5.80e-04	1.12e-03	1.12e - 03	1.12e-03	1.12e - 03	1.12e - 03	Π.	4.13e - 03	4.13e - 03	4.13e - 03	1.50e - 02		•	•	.36e-	•	5.36e-02	1.01e-01	1.01e-01	1.88e - 01	1.88e - 01	1.88e - 01	e-	∞.	.45e-	4.	.17e+	3.93e+00
Sequence encoding new	encoding	_	-	-			Sequence encoding new		ப்	Sequence encoding new	-	Sequence encoding new		Sequence encoding new			Sequence encoding new	Sequence encoding new	HCV envelope region n	ence encoding	Base substituted E.co		Degenerate FMN reduct		V.fischeri flavin red	Degenerate Alteromona	eoti	HSV-1 gB and surround	Oligonucleotide probe	Sequence encoding new	Gelonin toxin DNA.	Degenerate Alteromona	5V-1 gB an		rate A	aFGF syntheti	Bovine aFGF synthetic
N50034 N50023	N50028	N50031	N50023	N50029	N50024	N50032	N50025	N50024	094336	N50026	N50034	N50031	N50029	N50032	N5007'S	N50027	N50030	N50033	035072	N50026	N81164	N81164	043519	043519	088282	094336	051746	N71302	051746	NS0025	022981	094335	N71302	088282	33	882	088233
mr	m	r	n	m	m	ć	m	ო	-	m	m	m	٣	m	m	m	സ	m	9	m	-	-	-		Н	11	Q	7	6	m	m	11	7	12	11	14	14
498	501	501	501	501	501	501	501	501	984	501	498	501	501	. 501	501	501	501	501	265	. 501	204	204	657	657	711	984	16	3871	16	501	774	1065	3871	711	1065	420	420
6.9		8.9		8.9	•	6.7	6.7	6.7		6.5	6.4	6.4	6.4		6:4	6.1	6.1	6:1	6.1	6	5.7	5.6		٠	9.6	5.6	5.4			5.3	•	•	5.3			4.8	4.6
25.5	51	20	20	20	49	49	49	49	49	48	47	47	47	17	47	45	45	45	45	43	42	41	41	41	41	41	40	40	33	39	39	39	39	37	31	32	34
- α	9 01	10	Π	12	13	14	15	16	11	18	19	20	21	22	23	24	52	56	21	28	58	30	31	32	33	34	32	36	37	38	39	40	41	42	43	44	45
υ	υ	υ	υ	υ		υ	υ	บ		υ									ပ		υ			ပ	υ	υ			U		υ		υ		O		U

ALIGNMENTS

ş٦

/label= N-glycos_site Modified -site 161..163 ; /label= N-glycos site Modified -site 195.197.

/label= N-glycos site Modified -site 35..37

Modified -site

/label= N-glycos site Modified -site 744..246 /label= N-glycos_site Modified -site 277..279 /label= N-glycos_site Modified -site 349..351 /label= N-glycos site Modified -site 600..602

m

Dec 9 09:10

848439-2-trans.rng

87 A;

1047 BP;

Sequence

Matches

쇰 Š 요 ð 셤 Š 염 ð В ð g

174 6 127

also be prepd

<u>--</u> :: <u>--</u>

Claim 3; Fig 1; 49pp; English.

ä

(GETH) GENENTECH INC. Chang M, Goeddel D, Lowe WPI; 91-036711/05.

N-PSDB; Q10324.

22-JUN-1990; U03586. 23-JUN-1989; US-370673.

0-JAN-1991

N-glycos site

Dec 9 (09-10

/label= N-glycos site Modified -site 277..279

/label= N-glycos site Modified -site 349..351 Modified -site 600..602

/label= N-glycos_site /label= N-glycos_site

/label= N-glycos_site Modified -site 195..197 Modified -site 244..246

/label= N-glycos_site

Modified -site 161..163

848439-2-trans.rng

752

692

Dec 9 09:10

219 YITYTINGTRICNGGRIGGAYGYTGYITGAINACNARNGGNATCCANGCYIGYIC 220 459 NATRCANARRICRITRICYIGNGGRAANCKRICRCAYICNARCAIRICNGGCCANGGRAA 400 drtnnnnnnvnnmmrcwandnanrndngnnkgnnrrnnknggtsnndnnnrmnnyannn 812 219 NARNACYTCYTTCATNGTYTCRTGNCCNARNARRTTNGGNARNCKCATRTTYTGRTAYTC 160 813 nknvnnrtnaynnnkrkanannynnnnhøvannnkrgntvnanandøvtnynødnvgnta 872 873 nsanstnmnvvtnnndnytcndanndnndvykvntngdaymvvsgnngrngnrhannnar 932 519 YICRCANACYTINGGNGCYTCYTCNGINGCNGGNARNARRIGRICNWSNWSNGCNARNGG 460 100 SRAARTCNGGYTGNCCRAANARRAANARNCCNCKNGCNWSNCCNARRCARCARTGNWSNG 41 anti-proliferative and immune regulating actions Claim 28; Chart 2h, page 39; 71pp; English. Compared with interferon beta prepd. by recombinant methods, the TMFs of the invention are more active and have different affinities for cell surface receptors (allowing selective targetting); they have higher therapeutic index; improved stability against microbial 574 vnnnhntrnngacndnnnncnvtnycnrgsnndnnnndsnnndwmnrysnnndnvkgman 399 NCCRAANGCNWSCATNACNGGNGCRCANCKRTCYTTNACYTGNACRCANARNWSRTGRCA 634 nhnsnnsshgsnkssncvvdsrnvnkntdygnasn-rstannddnnanyakknntannnn 339 NGGYTCNATNGTYTCRTCNARRICRICNARRCANACNGGNGCRAANARNWSRCANARRAA sgnnnnttgmnaadvysngnnnnnnan.r.gnnynnqndnsnknnvnkvrngnrnynrnsn 514 rntnsnrgssygsnmtahgkynnnantghnkgnvvankhvnkkrnnntrnvnnnnkhmrd Sequence encoding new modified human beta interferon polypeptides ል breakdown during synthesis; and better in vivo solubility and prepd. Antivi'al; cell growth regulator; immune system regulator; antiproliferative; ss. New modified human beta interferon polypeptide(s) - pr plasmid transformed bacteria, with improved antiviral, 933 mananndavssnrnrhrnhdnnrnrngv 960 13 Location/Qualifiers 1..501 CNARRAANARNARNARNARNWSNCCNGG Bell LD, Boseley PG, Porter AG; WPI; 85-311944/50. N50030 standard; DNA; 501 BP 04-SEP-1991 (first entry) 17-MAY-1985; 105750. 17-MAY-1984; GB-012564. (SEAR) SEARLE G D & CO. :: P-PSDB; P50029 Homo sapiens. /*tag= a EP-163993-A. .1-DEC-1985. 753 40 693 RESULT 숌 გ 셤 S 쇰 g 쇰 g, g g. g გ 셤 S 合 ე 4; thnnrangrnvyncgnnnmnhnnnnnnanrnnntngdyvnnyndvngnsnragntratgrn 273 94 dnnngngcvynaasvarnashwrnnnntagavasgnsakndhyrtnvrtgnsankngnnv 153 154 vtnhghnnwtaraannyndartddrnhyntnngvnnanngsnnsvnhnvyarnnggnnna 213 637 TNATYTTNGTRICNCKRITNATRIANGINATYTCYTTNACYI-INATYTTNARNGCRAAR 579 394 nwamgdndsgdnnnaahysganknnwwtgrnnnwvkgannsdnnncandnddnscdktnn 453 stnanvangtgntnnmngvssnnnnrknmnnknnasmnwrnrwnnnngnsnryhkgags 513 877 RYTTNCKNATNWSNCKNWSNATNCKYTTRAAYTCNCKYTGNCCYTTYTGCCANCKYTTNA 818 TRICRITCATYICYTCRCANGIRCAYIGNARNWSRICYTİNARCCANARNACNWSYITYT 698 wndnrtrnnananrnanntvnvntyrnnnnnnynnnnrnnnrarndngvnngnsnmnn 333 TNARRICNCKYICNWSNACNCCRITNARYITRIANAINGTYITNWSYITNGTYICNARNA 638 334 agcnydgnnnyanvnnntnnnggtrndgnrnvnkmngrryhgvtgnvvmdknndrntdnv 393 578 TCRTTYTTRCANARNGTYTCCATNATRTCRTTRTCRTCRTCRTTYTTRTTYTTRCAN-GC 520 Gaps NPRB analogues. The protein has a mol wt. of 115 kD (calculated Mr= for the prodn. of the protein, opt. after being mutated to produce The sequence was derived from the DNA encoding natriuretic peptide natriuretic peptide disorders, and also to isolate peptides using affinity chromatography. Antibodies with affinity for NPRB can receptor B, NPRB, having guanyl cyclase (GC) activity and protein kinase activity. The DNA can be inserted into expression vectors The protein (or variants) can be used in treatment of kidney failure, heart failure, hyperaldosteronism, glaucoma etc. Claim 3; Fig 1; 49pp; English. Natriuretic protein receptor B - for diagnosis and treatment of 107; Conservative 223; Mismatches 534; Indels 4; 14.6%; Score 107; DB 2; Length 1047; 12.3%; Pred. No. 2.17e-22; 51 T;

83 G;

15 C;

87 A;

1047 BP;

Sequence Query Match

also be prepd.

114, 952).

Best Local Similarity 12.3%;

Matches

요 გ g ც 유

214 757 274 697

> g S 요 g 유 გ

ä

(GETH) GENENTECH INC. Chang M, Goeddel D, Lowe WPI; 91-036711/05.

N-PSDB; 010324:...

10-JAN-1991. 22-JUN-1990; U03586. 23-JUN-1989; US-370673.

10-JAN-1991

- :: -: :: :: :: :::

••

454

stability.

Dec 9 09:10

Sequence

೮ ೫

Matches

음 ც 염 130 460 190

გ 쇰 გ g ŝ 9

250

310

원

g,

370

ゟ გ g

გ g S

ä

4; Gaps

609 232

848439-2-trans.rng

New modified human beta interferon polypeptide(s) - prepd. by plasmid transformed bacteria, with improved antiviral, anti-proliferative and immune regulating actions Claim 28; Chart 2e, page 36; 71pp; English. Compared with interferon beta prepd. by recombinant methods, the Envalore; region; type C; hepatitis; virus; HCV; vaccine; serum; non-A, non-B; amplify; ss. Envelope region nucleic acid fragment - for type C hepatitis J04349885-A. 04-DEC-1992. 29-MAY-1991; 152169. 29-MAY-1991; UP-152169. (TELJ) TELJIN LTD. WPI; 93-022708/03. Hepatitis C virus. 5; 70 ytbaayggnmgdytbgartaytgyytbaargaymgdcaygayttymgdathccncargar 129 garttygayggnaaycarttycaraargargaygcngcnytbacnathtaygaratgytb 189 mgdtaytayggnmgdathytbcaytayytbaargcnaatgartaywnncaytgygcntgg 429 489 520 CYTCRCANACYTINGGNGCYTCYTCNGTNGCNGGNARNARRIGRICNWSNWSNGCNARNG 461 caraayathttygcnathttymgdcargaywnnwnnwnnacnggntggaaygaracnath 249 gtngaraayytbytbgcnaaygtntaycaycarathaaycayytbaaracngtnytbgar 309 garaarytbgaraargargayttyacnmgdggnaarytbatgwnnwnnytbcayytbaar 369 223 GYTCNARNACYTCYTTCATNGTYTCRJGNCCNARNARRTTNGGNARNCKCATRTTYTGRT 164 403 GRAANCCRAANGCNWSCAINACNGGNGCRCANCKRICYIINACYIGNACRCANARNWSRI 344 283 RRAAYTTYTINGTRICNGGRIGRCAYTGYTTCATNACNARNGGNATCCANGCNCCNGCYT 224 163 AYTCNATNCCRIGRCANARYIGNARRIINGCNGGNAINGGYITRCARIINWSNCKYITRI 104 10 aayytbytbggnttyytbcarmgdwnnwnnaayttycartgycaraarytbytbtggcar 69 Gaps from incubation mixts. G; 79 T; 430 acnathginmgdgingarathytbmgdaayttytayttyaathaaymgdytbacnggniay Sequence encoding new modified human beta interferon polypeptides .; ; Antiviral; cell growth regulator; immune system regulator; antiproliferative; ss. Query Match 7.2%; Score 53; DB 3; Length 501; Best Local Similarity 8.0%; Pred. No. 2.05e+05; 39; Conservative 187; Mismatches 260; Indels They are also easier to recover 501 BP; 110 A; 31 C; 69 Location/Qualifiers (SEAR) SEARLE G D & CO.
Bell LD, Boseley PG, Porter AG;
WPI; 85-311944/50.
P-PSDB; P50026. ₩. 04-SEP-1991 (first entry) N50027 standard; DNA; 501 17-MAY-1985; 105750. 17-MAY-1984; GB-012564. 1..501

გ

Homo sapiens

N50027;

EP-163993-A 11-DEC-1985

/*tag= a

DE PRESENTATION OF THE PRESENTATION OF T

셤

ð g ð 유 ð 셤 ð 셤 ð 염 ð g ð 셤 8

ä 53 araayytbytbtggcarytbaayggnmgdytbgartaytgyytbaargaymgdcaygayt 112 113 tygarttyccncargargarttygaygayaarcarttycaraargargaygcngcnytba 172 609 232 292 350 tgwnnwnnytbcayytbaarmgdtaytayggnmgdathytbcaytayytbaargcnaarg 409 artaywnncaytgygcntggacnathgtnmgdgtngarathytbmgdaayttytayttya 469 728 ARNWSRICYTTNARCCANARNACNWSYTTYTTNARRICNCKYTCNWSNACNCCRITNARY 669 548 TTRTCRTCRTCRTTYTTRTTYTTRCANGCYTCRCANACYTTNGGNGCYTCYTCNGTNGCN 489 293 tbaaracngtn--ytbgargar-aarytbgataargargayttyacnmgdggnaarytba 349 368 TCYTTNACYTGNACRCANARNWSRTGRCANGGYTGNATNGTYTCRTCNARRTCRTCNARR 309 428 TCECAYTCNARCATRTCNGGCCANGGIAINCCRAANGCNWSCATNACNGGNGCRCANCKR 369 have higher therapeutic index; improved stability against microbial breakdown during synthesis; and better in vivo solubility and stability. They are also easier to recover from incubation mixts. Sequence 501 BP; 111 A; 31 C; 68 G; 80 T; INFs of the invention are more active and have different affinities for cell surface receptors (allowing selective targetting); they 668 TERTANATUCIYTINNSYTINGTYTCNARNATNATYTINGTRICHKETINATRIANGIN 233 gntggaaygaracnathgtngaraayytbytbgcnaaygtntaycaycarathaaycayy 173 cnathtaygaratgytbcaraayathttygcnathttymgdcargaywnnwnnacng 608 ATYTCYTTNACYTTNATYTTNARNGCRAARTCRTTYTTRCANARNGTYTCCATNATRTCR Sequence encoding new modified human beta interferon polypeptides Compared with interferon beta prepd. by recombinant methods, the 4 : δ prepd. Antiviral; cell growth regulator; immune system regulator; Query Match (1.1.)

Best Local Similarity 16.0%; Pred. No. 4.036-vJ,

Matches 72; Conservative 135; Mismatches 240; Indels New modified human beta interferon polypeptide(s) - pr plasmid transformed bacteria, with improved antiviral, anti-proliferative and immune regulating actions Claim 28; Chart 2k, page 42; 71pp; English. 848439-2-transing :: :: :: 470 thaaymgdytbacnggntay-ytbmgdaayt 499 308 CANACNGGNGCRAANARNMSRCANARRAAYT 278 Location/Qualifiers BP N50034 standard; DNA; 498 (first entry) 1..498 antiproliferative; ss. <u>:</u> WPI; 85-311944/50. Homo sapiens. /*tag= a EP-163993-A. 04-SEP-1991 IFNX 485. Dec 9 09:10 410 RESULT 쇰 გ අ g ტ გ 셤 გ ብ გ 셤 გ 유 გ 셤 გ ID DT DT DE DE COS OS PLANTE FT PLANTE PLANT

5 60 yytdccyggttgcycyttytctatcttyctyytrgcyytbctytcytgyytgacyrybcc 119 120 hgyytccrcyyayvargtgcrcaacgsswcmgggnyrtay.atgtcacba-rygaytgyy 178 ccytgygtycgsgarrryrrynnytcbmgntgytgggyrgcgctbacycccacgstygcy 297 241 CCNYINGINAIGAARCARIGYCAY-CCNGAYACNAARAARITYYTNIGYWSNYINTIYGC 299 358 rsvgcyrcyytctgytcsgcyvtstaygtkggrgayytbtgcggrtcygtyttyctyrty 417 tcycabytgtttaccytctmbmcymgsmdg-yaygdgarrdyrcargrytgyaaytgytc 476 179 cyaackcragyatwgtgyayrarg-yrrmggayryyatcmtgcwydyyccbgggtgyryb 237 298 rcyagrrayvbyavyvtycccrcbrygvmrmtwcgbcgbcayrtcgayytgctygthggg 357 359 ARGINAARGAYMGNIGYGCNCCNGINAIGMSNGCNIIYGGNIIYCCNIGGCCNGAYAIGY 418 419 TNGARTGYGAYMGNTTYCCNCARGAYAAYGAYYTNTGYATNCCNYTNGCNWSNWSNGAYC 478 virus (1), for producing vaccine Claim 1; Page 2; 13pp; Japanese. This sequence encodes a novel envelope region of type C hepatitis virus (HCV). This fragment can be used for the preparation of a vaccine for hepatitis C. This fragment was prepared from the serum 5; Gaps of non-A, non-B hepatitie patients and the envelope region DNA was amplified by PCR using the primer sequences given in Q35073-76. Sequence $565 \ \mathrm{BP}_i$, $61 \ \mathrm{A}_i$, $92 \ \mathrm{C}_i$, $106 \ \mathrm{G}_i$, $85 \ \mathrm{T}_i$ |: | ::: :: :: :: :: :: :: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | : Sequence encoding new modified human beta interferon polypeptides Antiviral; cell growth regulator; immune system regulator; Query Match 7.2%; Score 53; DB 6; Length 565; Best Local Similarity 13.7%; Pred. No. 2.05e-05; 61; Conservative 160; Mismatches 218; Indels 848439-2-trans.mg <u>=</u> dmtytayscyggscayrtrwcrgg 500 479 AYYTNYTNCCNGCNACNGARGARG 502 BP. N50033 standard; DNA; 501 04-SEP-1991 (first entry) . . antiproliferative; 88. Dec 9 09:10 Matches 418 477 238

Location/Qualifiers 1..501

Homo sapiens.

/*tag= a EP-163993-A. 11-DEC-1985

17-MAY-1985; 105750. 17-MAY-1984; GB-012564. (SEAR) SEARLE G D & CO. Bell LD, Boseley PG, Porter AG;

Dec 9 00-10

Dec 9 09:10

470 SNWSNGAYCAYYTNYTNCCNGCNACNGARGARGCNCCNAARGTNTGYGARGCNTGYAARA 529 226 wnnacnggntggaaygaracnathgtngaraayytbytbgcnaaygtn-taycaycarat 284 rytbatgwnnwnnytbcayytbaarmgdtaytayggnmgdathytbcaytayytbaargc 404 405 naargattaywnncaytgygcntggacnathgtnmgdgtngarathytbmgdaayttyta 464 : | | | : :: : | | ; :| 11: | | : | : : : : : : : 110 TNTGCYTNAARGATWANYTNCARTCYACNTOYGGARGARATGAAYGATATWAAYGCNCCNT 769 166 gcnytbacnathtaygaratgytbcaraayathttygcnathttymgdcargaywnnwnn 225 INFs of the invention are more active and have different affinities for cell surface receptors (allowing selective targetting); they have higher therapeutic index; improved stability against microbial breakdym's during synthesis; and better in vivo solubility and stability. They are also easier to recover from incubation mixts. Sequence 501 BP; 107 A; 31 C; 69 G; 80 T; 285 haaycayytbaaracngtnytbgargataarytbgaraargargyttyacnmgddgnaa | ::|: | : |:: : : | | |:: | |:: | | 590 ARATNAARGTRAARGARATNACNTAYATNAAYMGNGAYACNAARATNATNYTNGARACNA : : : | : : | : : | : : | : : | : : | 650 ARWSINGARACHATANAARAARWSINGTINY 530 AYAARAAYGAYGAYGAYAAYGAYATNATGGARACNYTNTGYAARAAYGAYTTYGCNYTNA Sequence encoding new modified human beta interferon polypeptides Sequence encoding new modified human beta interferon polypeptides Compared with interferon beta prepd. by recombinant methods, the New modified human beta interferon polypeptide(s) - prepd. plasmid transformed bacteria, with improved antiviral, Intiviral; cell growth regulator; immune system regulator; antiproliferative; 88. 95; Mismatches 167; Indels Antiviral; cell growth requlator; immune system regulator; Query Match 6.9%; Score 51; DB 3; Length 501; Best Local Similarity 16.0%; Pred. No. 7.88e-05; Matches 50; Conservative 95; Mismatches 167; Indels anti-proliferative and immune regulating actions Claim 28; Chart 2a, page 32; 71pp; English. Location/Qualifiers 1..501 17-MAY-1985; 105750. 17-MAY-1884; GB-012564. (SFAR) SEARLE G D & CO. Bell ID, Boseley PG, Porter AG; WPI, 85-311944/50. <u>::</u> :: LT 9 N50028 standard; DNA; 501 BP. 04-SEP-1991 (first entry) 455 y:tyathaaymgd 477 ::: : |: |: |: 770 AYYINGTNATGGG 782 Homo sapiens. P-PSDB; P5002 /*tag= a EP-163993-A. 11-DEC-1985. IFNX 445. IFNX 416. N50028; 345 RESULT ID N5 AC N5 DT 04 DE SC KW A g g 음 g ð ð 유 ð Š ò ð 5 70 ytbaayggnmgdytbgartaytgyytbaargaymgdgcngayt-tyaarathccnatgga 128 520 CYTCRCANACYTTNGGNGCYTCYTCNGTNGCNGGNARNARRTGRTCNWSNWSNGCNARNG 461 129 ratgacngaraargarttycaraargargaygcngcnytbacnathtaygaratgytbca 188 460 GNATRCANARRICRTTRTCYTGNGGRAANCKRTCRCAYTCN-ARCATRTCNGGCCANGGR 402 189 raayathttygcnathttymgdcargaywnnwnnwnnacnggntggaaygaracnathgt 248 401 AANCCRAANGCNWSCATNACNGGNGCRCANCKRTCYTTNACYTGNACRCANARNWSRTGR 342 249 ngaraayytbytbgcnaaygtntaycaycarathaaycayytbaaracngtnytbgarga 308 309 raarytbgaraargargayttyacnmgddgnaarytbatgwnnwnnytbcayytbaarmg 368 369 dtaytayggnmgdathytbcaytayytbaargcnaargartaywnncaytgygcntggac 428 429 nathgtnmgdgtngarathytbmgdaayttytayttyathaaymgdytbacnggntayyt 488 341 CANGGYTGNATNGTYTCRTCNARRTCRTCNARRCANACNGGNGCRAANARNWSRCANARR 282 221 TCNARNACYTCYTTCATNGTYTCRTGNCCNARNARRTTNGGNARNCKCATRTTYTGRTAY 162 161 TCNATNCCRIGRCANARYTGNARRITNGCNGGNATNGGYTTRCARTINWSNCKYTTRIAN 102 10 aayytbytbggnttyytbcarmgdwnnwnnaayttycarwnncaraarytbytbtggcar 69 Gaps INFs of the invention are more active and have different affinities have higher therapeutic index; improved stability against microbial breakdown during synthesis; and better in vivo solubility and stability. They are also easier to recover from incubation mixts. Sequence 498 BP; 112 A; 30 C; 68 G; 77 T; Claim 28; Chart 21, page 43; 71pp; English. Compared with interforon beta prepd. by recombinant methods, the for cell surface receptors (allowing selective targetting); they 2; ል New modified human bota interferon polypeptide(s) - prepd. plasmid transformed bacteria, with improved antiviral, 39; Conservative 181; Mismatches 265; Indels Query Match 6.9%; Score 51; DB 3; Length 498; Best Local Similarity 8.0%; Pred. No. 7.88e-05; = anti-proliferative and immune requlating actions .. :: 17-WAY-1985; 105750. 17-WAY-1984; GB-012564. (SEAR) SEARLE G D & CO. Bell LD, Boseley PG, Porter AG; WPI; 85-311944/50. 굞 LT 8 N50023 standard; DNA; 501 04-SEP-1991 (first entry) . 489 bmgdaay 495 101 WSRAART 95 P-PSDB; P50033.

ც උ გ 유 ç 셤 g, q ŝ 유 გ

გ 요

Matches

g გ g S 셤

1;

1;

δ

709

N50023;

RESULT ID NS AC NS DT 04

Location/Qualifiers 1..501

antiproliferative; sm.

Dec 9 09:10

a

Homo sapiens.

/*tag= a EP-163993-A. 11-DEC-1985.

/*tag=

Bell LD, Boseley PG, Porter AG; WPI; 85-311944/50. P-PSDB; P50027.

KWW OS SEED OS

(SEAR) SEARLE G D & CO. 17-MAY-1985; 105750. 17-MAY-1984; GB-012564.

848439-2-trans.rng

Dec 9 09:10

53 araarytbytbtggcarytbaayggnmgdytbgartaytgyytbaargaymgdaartayt 112 113 tyggnttyccncargargarttygayggiaaycarttycaraargargaygcngcnytba 172 232 549 292 548 TTRICRICRICRITYTTRITYTTRCANGCYTCRCANACYTINGGNGCYTCYTCNGTNGCN 489 349 488 GGNARNARRIGRICONNSNWSNGCNARNGGNAIRCANARRICRITRICYIGNGGRAANCKR 429 350 tgwnnwnnytbcayytbaarmgdtaytayggnmgdathytbcaytayytbaargcnaarg 409 410 artaywnncaytgygcntggacnathgtnmgdgtngarathytbmgdaayttytayttya 469 668 TTRTANATNGTYTTNWSYTTNGTYTCNARNATNATYTTNGTRTCNCKRTTNATRTANGTN 609 Gaps INFs of the invention are more active and have different affinities have higher therapeutic index; improved stability against microbial breakdown during synthesis; and better in vivo solubility and stability. They are also easier to recover from incubation mixts. Sequence 501 BP; 110 A; 30 C; 69 G; 80 T; 368 TCYTTNACYTGNACRCANARNWSRTGRCANGGYTGNATNGTYTCRTCNARRRTCRTCNARR 173 cnathtaygaratgytbcaraayathttygcnathttymgdcargaywnnwnnacng gntggaaygaracnathgtngaraayytbytbgcnaaygtntaycaycarathaaycayy 293 tbaaracngtnytbgargara--arytbgaraa-rgargayttyacnmgdggnaarytba Sequence encoding new modified human beta interferon polypeptides Claim 28; Chart 2i, page 40; 71pp; English. Compared with interferon beta prepd. by recombinant methods, the for cell surface receptors (allowing selective targetting); they 4; δ prepd. Antiviral; cell growth regulator; immune system regulator; antiproliferative; ss. 69; Conservative 136; Mismatches 242; Indels Match 6.8%; Score 50; DB 3; Length 501; Local Similarity 15.3%; Pred. No. 1.54e-04; plasmid transformed bacteria, with improved antiviral, New modified human beta interferon polypeptide(s) anti-proliferative and immune regulating actions = 470 thaaymgdytbacnggntay-ytbmgdaayt 499 Location/Qualifiers 17-MAY-1985, 105750. 17-MAY-1984, GB-012564. (SEAR) SEARLE G D & CO. Fell LD, Boseley PG, Porter AG; WPI; 85-311944/50. (first entry) :: P-PSDB; P50030 Homo sapiens. 04-SEP-1991 EP-163993-A 11-DEC-1985 /*tag= 3 Query Match 233 Matches Best g g 셤 გ 염 გ 요 ტ 쇰 გ 셤 გ გ 셤 염 ä 62 tbtggcarytbaayggnmgdytbgartaytgyytbaargaymgdatgaayttygayathc 121 806 ACNARYTCNCCNCCYTGYTTYTGNCCCATNACNARRIANGGNGCRTTNATRICRITCATY 747 122 cngargarathaarcarggncarcarttycaraargargaygcngcnytbacnathtayg 181 182 aratgytbcaraayathttygcnathttymgdcargaywnnwnnwnnacnggntggaayg 241 242 aracnathgingaraayytbytbgcnaaygintaycaycarathaa--ycayytbaarac 299 300 ngtnytbgargaraarytbgaraargargayttyacnmgdggnaarytbatgwnnwnnyt 359 566 ARNGTYTCCATNATRTCRTTRTCRTCRTTRTTYTTRTTYTTRCANGCYTCRCANACYTTN 507 360 bcayytbaarmgdtaytayggnmgdathytbcaytayytbaargcnaargartaywnnca 419 506 GCNGCYTCYTCNGTNGCNGGNARNARRTGRTCNWSNWSNGCNARNGGNATRCANARRTCR 447 866 WSNCKNWSNATNCKYTTRAAYTCNCKYTGNCCYTTYTGCCANCKYTTNACNWSNCTNATN 807 686 TCNWSNACNCCRTTNARYTTRTANATNGTYTTNWSYTTNGTYTCNARNATNATYTTNGTR 627 626 TCNCKRITINATRIANGINATYICYITINACYITINATYITINARNGCRAARICRITYTIRCAN 567 2 tgwnntayaayytbytbggnttyytbcaragdwnnwnnaayttycartgycaraatytby 61 2; Gaps INFs of the invention are more active and have different affinities for cell surface receptors (allowing selective targetting); they have higher therapeutic index; improved stability against microbial They are also easier to recover from incubation mixts. New modified human bota interferon polypeptide(s) - prepd. by plasmid transformed bacteria, with improved antiviral, anti-proliferative and immune regulating actions Claim 28; Chart 2f, page 37; 71pp; English. Compared with interforon beta prepd. by recombinant methods, the breakdown during synthesis; and better in vivo solubility and

44; Conservative 159; Mismatches 252; Indels

9.68;

Best Local Similarity

Matches

쇰 გ g გ g გ a g, 임

Query Match

420 ytgygcntggacnathgtnmgdgtngarathytbmgd 456

გ 염

염

g g

გ

N50031 standard; DNA; 501 BP

RESULT

g,

ü

6.9%; Score 51; DB 3; Length 501; 9.6%; Pred. No. 7.88e-05;

79 T;

68 G;

31 C;

114 A;

stability, They

ñ

308 CANACNGGNGCRAANARNWSRCANARFAAYT 278

გ

```
ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        733 AYTGNARNWSRTCYTTNARCCANARNACNWSYTTYTTNARRTCNCKYTCNWSNACNCCRT 674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       108 ygayttyggnttyccncargargarttygayggnaaycarttycaraargargaygcngc 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               673 TNARYTTRTANATNGTYTTNWSYTTNGTYTCNARNATNATYTTNGTRTCNCKRTTNATRT 614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       168 nytbacnathtaygaratgytbcaraayathttygcnathttymgdcargaywnnwnnwn 227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                613 ANGTINATYTCYTTINACYTTINATYTTINARNGCRAARTCRTTYTTRCANARNGTYTCCATNA 554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    228 nacnggntggaaygaracnathgtngaraayytbytbgcnaaygtntaycaycarathaa 287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            288 ycayytbaaracngtnytbgargata--arytbgaraa-rgargayttyacnmgdggnaa 344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 345 rytbatgwnnwnnytbcayytbaarmgdtaytayggnmgdathytbcaytayytbaargc 404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 433 ANCKRICRCAYICNARCAIRICNGGCCANGGRAANCCRAANGCNWSCAINACNGGNGCRC 374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            405 naargattaywnncaytgygcntggacnathgtnmgdgtngarathytbmgdaayttyta 464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   48 rwnncaraarytbytbtggcarytbmmyggnmgdytbgartaytgyytbaargaymgdca 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                553 TRTCRTTRTCRTCRTCRTTYTTRTTYTTRCANGCYTCRCANACYTTNGGNGCYTCYTCNG 494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            INFs of the invention are more active and have different affinities
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                have higher therapeutic index; improved stability against microbial
breakdown during synthesis; and better in vivo solubility and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         are also easier to recover from incubation mixts. y_1 = 107 \text{ A}; y_2 = 107 \text{ A}; y_3 = 107 \text{ A}; y_4 = 107 \text{ A}; y_5 = 107 \text{ A}; y_5 = 107 \text{ A}; y_5 = 107 \text{ A};
                                                                                                             Sequence encoding new modified human beta interferon polypeptides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Compared with interferon beta prepd. by recombinant methods, the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              for cell surface receptors (allowing selective targetting); they
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ፚ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  New modified human beta interferon polypeptide(s) - prepd.
                                                                                                                                                                               Antiviral; cell growth regulator; immune system regulator; antiproliferative; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           68; Conservative 138; Mismatches 246; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6.8%; Score 50; DB 3; Length 501;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        plasmid transformed bacteria, with improved antiviral
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ::
:::
:::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                <del>::</del>
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          anti-proliferative and immune regulating actions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pred. No. 1.54e-04;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 28; Chart 2a, page 32; 71pp; English.
                                                                                                                                                                                                                                                                                                    Location/Qualifiers 1..501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (SEAR ) SEARLE G D & CO.
Bell LD, Boseley PG, Porter AG;
WPI; 85-311944/50.
P-PSDB; P50022.
N50023 standard; DNA; 501 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Local Similarity 14.9%;
                                                                        04-SEP-1991 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         17-MAY-1984; GB-012564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                <u>:</u>
::
::
                                                                                                                                                                                                                                                                                                                                                                                                                                                    11-DEC-1985.
17-MAY-1985; 105750.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         stability. They as Sequence 501 BP;
                                                                                                                                                                                                                                                                     Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                  EP-163993-A
                                                                                                                                                                                                                                                                                                                                                                                      æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                         N50023;
                                                                                                                                                                                                                                                                                                                                                                                   /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
```

엄 g 윤 გ 염 გ

ც 셤

გ 임 qq

გ

848439-2-trans.mg Dec 9 09:10

```
ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         608 ATYTCYTHACYTHARYTTHARNGCRARATCRTTYTTRCANARNGTYTCCATNATRTCR 549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           489
53 araarytbytbtggcarytbaayggnmgdytbgartaytgyytbaargaymgdatgaayt 112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  113 tyggnathcongargarathaarcarggncarcarttycaraargargaygongcnytba 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cnathtaygaratgytbcaraayathttygcnathttymgdcargaywnnwnnacng 232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 28; Chart 29, page 38; 71pp; English.
Compared with interferon beta prepd. by recombinant methods, the
INFs of the invention are more active and have different affinities
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      have higher therapeutic index; improved stability against microbial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        They are also easier to recover from incubation mixts.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gntggaaygaracnathgtngaraayytbytbgcnaaygtntaycaycarathaaycayy
                                                                                                                                                                                                            Sequence encoding new modified human beta interferon polypeptides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           548 ITRICRICRICRITYTTRITYTTRCANGCYTCRCANACYTINGGNGCYTCYTCNGTNGCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 293 tbaaracngtnytbgargara--arytbgaraa-rgargayttyacnmgdggnaarytba
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    for cell surface receptors (allowing selective targetting); they
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      breakdown during synthesis; and better in vivo solubility and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                prepd. by
                                                                                                                                                                                                                                            Antiviral; cell growth regulator; immune system regulator; antiproliferative; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           72; Conservative 133; Mismatches 242; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 3; Length 501;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              plasmid transformed bacteria, with improved antiviral, anti-proliferative and immune regulating actions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                New modified human beta interferon polypeptide(s) -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 6.8%; Score 50; DB 3; LA
Best Local Similarity 16.0%; Pred. No. 1.54e-04;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          69
                                                  465 yttyathaaymgdytbacnggntay-ytbmgdaayt 499
                                                                                    313 CNARRCANACNGGNGCRAANARNWSRCANARRAAYT 278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          31 C;
                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                        (SEAR ) SEARLE G D & CO.
Bell LD, Boseley PG, Porter AG;
WPI; 85-311944/50.
                                                                                                                                                        N50029 standard; DNA; 501
                                                                                                                                                                                          04-SEP-1991 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                          17-MAY-1984; GB-012564
                                                                                                                                                                                                                                                                                                                    1..501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           stability. They
                                                                                                                                                                                                                                                                                                                                                                                         17-MAY-1985; 105750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            P-PSDB; P50028.
                                                                                                                                                                                                                                                                                     Homo sapiens.
                                                                                                                                                                                                                                                                                                                                    /*tag= a
EP-163993-A.
                                                                                                                                                                                                                                                                                                                                                                        11-DEC-1985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                     ე
                                                   g
                                                                                       ç,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ც
                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             염
```

350 tgwnnwnnytbcayytbaarmgdtaytayggnmgdathytbcaytayytbaargcnaarg 409

쇰 გ g g ይ გ

Locatlon/Qualifiers 1..501

antiproliferative; 88.

Homo sapiens

/*tag= a EP-163993-A. 11-DEC-1985

JT 13 N50024 standard; DNA; 501 BP

N50024;

345 rytbatgwnnwnnytbcayytbaarmgdtaytayggnmgdathytbcaytayytbaatgc 404 : :: : | :: | :: | :: | :: | : 650 ARWSNAARACNAINTAYAARYTNAAYGGNGTNWSNGARMGNGAYTNAARAARWSNGINY 709

g

S

8

285 haaycayytbaaracngtnytbgargaraarytbgaraargargayttyacnmgdggnaa 344

임

ŝ

Query Match
Best Local Similarity 16.0%;

셤

g

à

848439-2-trans.mg Dec 909:10

g G	ttgygcntggacnathgtnmgdgtngarat
á	: : :: .
OP	465 yttyathaaymgd 477
δ	770 AYYINGTNATGGG 782
RESU	1.7 14
OI	N50032 standard; DNA; 501 BP.
AC	
E 5	(4-ber-1991 (Ilrat entry) Semiance encoding new modified himse beta interferon nolymentides
임임	respective encouring new mountains included interaction postphysical IFNX 449.
ΚÆ	Antiviral; cell growth regulator; immune system regulator;
3 8	antiproliferative; ss.
3 E	
FT	
F.	/*tag= a rp 163002.a
2 6	11-DEC-1985.
돲	17-MAY-1985; 105750.
PR	17-MAY-1984; GB-012564.
PA	(SEAR) SEARLE G D & CO.
Z 8	Bell LD, Boseley Fo, Foller AG; WPI: 85-311944/50.
DR	
PT	New modified human beta interferon polypeptide(s) - prepd. by
F E	plasmid transformed bacteria, with improved antiviral,
PS	anti-proliferative and immune regulating actions Claim 28: Chart 21. page 41: 71pp: English.
8	Compared with interferon beta prepd. by recombinant methods, the
ខ្ល	INTS of the invention are more active and have different affinities
ဗ ဗ	for cell surface receptors (allowing selective targetting); they
3 8	have higher thereforests index; improved Brability against microbias breakdown during avothesis; and better in vivo solubility and
88	stability. They are also easier to recover from incubation mixts.
ŎS.	Sequence 501 BP; 108 A; 30 C; 72 G; 79 T;
Ou Be Ma	Query Match 6.7%; Score 49; DB 3; Length 501; Best Local Similarity 15.3%; Pred. No. 2.99e-04; Matches 69; Conservative 135; Mismatches 243; Indels 4; Gaps 3;
QQ	53 araarytbytbtggcarytbaayggnmgdytbgartaytgyytbaargaymgdcaygayt 112
ç	128 ARNHSRICYTINARCCANARNACHHSYTTYTINARTCNCKYTCNHSNACHCRTINARY 669
DÞ	113 tyggnttyccnggngargarttygayggnaaycarttycaraargargaygcngcnytba 172
c,	668 THRIANAINGIYIINMSYIINGIYICNARNAINAIYITUGIRICNCKRITNAIRIANGIN 609
qq	173 cnathtaygaratgytbcaraayathttygcnathttymgdcargaywnnwnnacng 232
ď	608 ATYTCYTHACYTHATYTHARNGCRAARTCRTTYTTRCANARNGTYTCCATNATRTCR 549
g	233 gntggaaygaracnathgtngaraayytbytbgcnaaygtntaycaycarathaaycayy 292
ςb	: :: :: :: :: :: :: : : : : :: : :: : :: : :: : :: :
g	293 tbaaracngtnytbgargaraarytbgaraa-rgargayttyacnmgdggnaarytba 349

848439-2-trans.mg Dec 9 09 10

9 410 artaywnncaytgygcntggacnathgtnmgdgtngarathytbmgdaayttytayttya 469 53 araarytbytbtggcarytbaayggnmgdytbgartaytgyytbaatgaymgdatgaayt 112 173 cnathtaygaratgytbcataayathttygcnathttymgdcatgaywnnwnnacng 232 368 TCYTTNACYTGNACRCANARNWSRTGRCANGGYTGNATNGTYTCRTCNARRTCRTCNARR 309 113 tygayathccncatgargarttygayggnaaycarttycaraargargaygcngcnytba 172 608 ATYTCYTINACYTINATYTINARNGCRAARTCRTTYTIRCANARNGTYTCCATNATRTCR 549 488 GGNARNARRTGRTCNWSNWSNGCNARNGGNATRCANARRTCRTTRTCYTGNGGRAANCKR 429 71; Conservative 134; Mismatches 242; Indels 4; Gaps INFs of the invention are more active and have different affinities have higher therapeutic index; improved stability against microbial breakdown during synthesis; and better in vivo solubility and stability. They are also easier to recover from incubation mixts. Sequence 501 BP; 112 A; 30 C; 69 G; 85 T; 04-SEP-1991 (first entry) Sequence encoding new modified human beta interferon polypeptides anti-proliferative and immune regulating actions Claim 28; Chart 2c, page 34; 71pp; English. Compared with interferon beta prepd. by recombinant methods, the for cell surface receptors (allowing selective targetting); they ò New modified human beta interferon polypeptide(s) - prepd. plasmid transformed bacteria, with improved antiviral, Antiviral; cell growth regulator; immune system regulator; antiproliferative; ss. 6.7%; Score 49; DB 3; Length 501; 5.7%; Pred. No. 2.99e-04; 470 thaaymgdytbacnggntay-ytbmgdaayt 499 308 CANACNGGNGCRAANARNWSRCANARRAAYT 278 Location/Qualifiers 17-MAY-1985; 105750. 17-MAY-1984; GB-012564. (SEAR) SEARLE G D & CO. Bell LD, Boseley PG, Porter AG; WPI; 85-311944/50. P-PSDB; P50024. .T 15 N50025 standard; DNA; 501 BP. N50025; Best Local Similarity 15.7%; 1..501 stability. He, Homo sapiens /*tag= a EP-163993-A. 11-DEC-1985 Query Match Matches g S ტ 임 염 ဌ g g, g ვ 셤 გ

233 gntggaaygaracnathgtngaraayytbytbgcnaaygtntaycaycarathaaycayy 292

848439-2-trans.rng Dec 9 09:10

20

	470 thaaymgdytbacnggntay-ytbmgdaayt 499 : : : : :: ::: 308 CANACNGGNGCRAANARNASRCANARRAAYT 278	470	පු පු
309	368 TCYTINACYIGNACRCANARNWSRIGRCANGGYIGNAINGTYTCRTCNARRICRICNARR 309	368	Съ
469	410 artaywnncattgygcntggacnathgtnmgdgtngarathytbmgdaayttytayttya 469	410	QQ
369	428 TCRCAYTCNARCATRICNGGCCANGGRAANCCRAANGCNWSCATNACNGGNGCRCANCKR 369	428	ď
409	350 tgwnnwnnytbcayytbaarmgdtaytayggnmgdathytbcaytayytbaargcnaatg 409	350	e P
429	488 GGNARNARRICRICNWSNWSNGCNARNGGNATRCANARRICRITRICYTGNGGRAANGKR 429	488	Сb
349	293 tbaaracngtnytbgargaraarytbgaraa-rgargarttyacnmgdggnaarytba 349	293	QQ
489	548 TIRTCRICRITRITYTRTRYTTRCANGCYTCRCANACYTINGGNGCYTCYTCNGINGCN 489	548	c _p

Search completed: Tue Dec 9 09:10:39 1997 Job time: 282 secs